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OUR COUNTRY AND COLONIAL SUBSCRIBERS are requested to furnish the Editor with any trade gossip that they may consider interesting.

Subscribers are requested to observe that, for the future, the receipt of THE CHEMIST AND DRUGGIST in a Green Wrapper indicates that with that number the term of subscription has expired, and that no further numbers will be sent until the same has been renewed. We issue the notice very respectfully, not that we distrust our Subscribers, but simply because we find it impossible to keep an immense subscription list like that we now have, extending to almost every town in the world, in order without an exact system like this.

Editorial Notes.

WE shall be very much obliged if our readers will send us orders, accompanied with remittances, for our "Almanack and Text Book" for 1870. We have no hesitation in recommending them to do so, as, from what we have already seen of the work, we are quite sure that its practical value to all in the trade, principals and assistants, will far outweigh its cost. Among a mass of other suitable matter, we may mention the following articles which have been written expressly for this "Text Book," and which, from the high standing of the several writers, will possess an extra interest to pharmaceutical readers:—Plain Directions for Testing Urine, and Saturation Tables, by Professor Atfield, Ph.D., F.C.S.; A Pharmaceutical Calendar, and other contributions, by J. C. Brough, F.C.S.; Prices, by Daniel Hanbury, F.R.S., F.L.S.; English and Foreign Formule, by Joseph Ince, F.L.S., F.C.S.; Self Help, by G. F. Schacht (Clifton). The calendar will be compiled especially with a view to be useful to the chemist and druggist; and a variety of scientific and commercial information will be presented, in addition to the articles already enumerated and the usual almanac contents. The first edition of the work will be ready early in December, and copies will be posted in the rotation of orders received. The price will be the same as last year, viz., 1s. 2d. post free to any part of the United Kingdom, and 1s. 6d. abroad. Last year our first two editions were exhausted before we could supply the full demand; but we hope to obviate that difficulty on this occasion if purchasers will thus help us by ordering early.

We have completed arrangements with Messrs. Bathgate and Son, of Calcutta, Messrs. Felton, Grimwade and Co., of Melbourne, Victoria, and Messrs. Faulding and Co., of Adelaide, South Australia, and we are pleased to announce that for the future these eminent firms will act as our agents for the continents referred to. The "CHEMIST AND DRUGGIST"

is already largely read both in India and Australia, but we have confidence that our subscription list will be still more widely extended by these arrangements. Our present subscribers in India and Australia will kindly note this, and will greatly oblige by remitting subscriptions in future to one of the firms mentioned above.

WE direct attention to Mr. Qurr's amusing communication on Metrie Measures, trusting that it will give rise to an interesting discussion in these pages. We think that our contributor lays far too much stress on the halving principle. It is true that our pound and foot may be divided in a very convenient manner, but many measures and numbers are in common use which do not admit of a corresponding division. The wine hogshead contains 63 gallons, the beer hogshead 54 gallons. The mile is divided into rods or perches of $5\frac{1}{2}$ yards. The bookseller's dozen is 13. We do not see why the metre and the kilogramme may not be divided into halves, quarters, and eighths if such divisions are found to be convenient. All that we desire is that our standard weights shall be brought into harmony with our numerical system.

THE International Pharmaceutical Congress of Pharmaceutical Associations and Unions was held at Vienna on the 9th and 10th ult. Mr. H. SUGDEN EVANS, the President of the Pharmaceutical Society, and Professor REDWOOD, ably represented British Pharmacy. Delegates attended from America, France, Italy, North Germany, South Germany, Austria, Russia, and Switzerland. The constitution of the schools of pharmacy in different countries was discussed, and a resolution to the following effect was passed:—"That higher pharmaceutical schools, as an independent part of the Universities, with pharmacists as professors in the classes relating exclusively to pharmacy, would be of the greatest advantage to the interests of the public and also of the pharmaceutical profession."

THE Board of Examiners of the Pharmaceutical Society have made some important alterations in the regulations for the Preliminary Examination. The Middle-Class Examinations of Oxford, Cambridge, or Durham, and the Examination of the College of Preceptors, or of any legally-constituted Examining Body of the United Kingdom, provided Latin is included as one of the subjects, are accepted in lieu of this examination, as heretofore, but the mere signature of a doctor or clergyman will no longer be taken as sufficient evidence of classical proficiency. Students residing in the country will have to write their answers to the examination papers in the presence of the Local Secretary, to whom the papers will be forwarded; and this must be accomplished in a given time, without any assistance from books or other sources.

Pharmaceutical Society of Great Britain.

THE OPENING OF THE SESSION 1899-70.

WHEN a pharmacist turns orator and his speech begins to flag, there is deep certainty that he will fall back on a well-known expedient.

"Had the spirit of Jacob Bell" (he exclaims) "been present, what would he have said?" The speaker has not the least idea, no more has anyone else. But the shade is most polite, for it invariably says exactly what is wanted. Once more, by no means with the same intention, we may ask, had our founder gazed one Wednesday evening at what is termed the Lecture Theatre, what would he have felt? Neither would he have been astonished by the vision of pharmaceutical ladies, nor yet that the *Ricinus communis*

should be thriving on the premises.* For the tunnel to which we have alluded used to be a damp descending shaft, draughty, uncomfortable, and dirty; but the decorator has been at work, the gasfitter, and the charwoman. It ceases to remind a classic student of the immuring of a vestal virgin, and is transformed into something as attractive as similar architecture will permit.

The occasion which drew together so many visitors was the opening of the session. Mr. SUGDEN EVANS took the chair, and having made a few appropriate remarks, distributed the prizes to the successful competitors. In awarding the Pereira Medal to

Mr. GEORGE CONDER,

he said:—This is the highest award to merit the Council has it in its power to make, and I feel it a very great honour to be the bestower on the present occasion. I trust that in competing you have not made the acquisition of the prize the aim of your labours, if so you will utterly fail in the object for which the prize was founded. Prizes should be regarded as milestones on our path in life, serving to mark our several successes; as such they prove of inestimable value in affording stimulants to increased exertion, and the achievement of new successes. As you contemplate the man whose image this medal bears, and whose name shall live as long as pharmacy exists, think of his toil and hard labour to elucidate truth; then seek to emulate his bright example, and build up for yourself a lasting celebrity in the annals of British Pharmacy, such as his.

The three Professors attached to the Institution next presented their reports.

Professor REDWOOD was suffering from indisposition. Nevertheless, he explained in the happiest manner the working of the department with which he is connected, and expressed his entire satisfaction with respect to the answers of his students.

The questions for examination in Chemistry and Pharmacy, were as follows:—

1. Define the terms *Density* and *Specific Gravity*. Explain the theorem of Archimedes relating to the loss of weight in a body when immersed in a liquid. Describe the specific gravity bottle, and point out the modifications in its construction which have been suggested, stating the special objects for which such modifications are made.

2. Describe the Hydraulic Press; explain the principle of its peculiar action, and state the advantages and disadvantages attending its use as compared with the screw-press.

3. What physical changes are effected in Zinc by the application of different degrees of heat to it? How would you proceed in reducing zinc and tin to a finely granulated state?

4. Describe minutely the way in which the ingredients named in the following prescription should be mixed for the production of an Emulsion:—

R Bals. Copaiba, f3ij.
Pulv. Acacia, ʒj.
Aque destil. f5vss.

Misc.

5. Explain the action of the Siphon.

6. Describe *Sulphur*, its sources, the means by which it is purified, its allotropic modifications, and its principal combinations with hydrogen and oxygen.

7. Describe the Pharmacopœia process for the preparation of *Diluted Hydrocyanic Acid*, showing the decompositions which occur in the process, and the method by which the strength of the acid is determined.

8. Describe some of the processes by which artificial organic bases are obtained, and specify two or three bodies produced by such means.

The following were the awards:—

Bronze Council Medal—JOHN INGHAM.

Certificate of Honour—EDWARD ALFRED WEBB.

Certificate of Merit—JOSEPH ELIJAH BARNES.

Professor BENTLEY said that he, like the President, had been a student at the Pharmaceutical Society, and in the

year 1842, he had the honour of receiving the first prize ever given by the Council of that Institution, and its value was enhanced by its being presented to him by one who not only held a high position in science, but was also a great philanthropist; he referred to William Allen, the first President of the Pharmaceutical Society. In the year 1849, he made his first report as a Professor of the Pharmaceutical Society, and on that occasion he had to speak in high terms of the regularity of attendance, good conduct, diligence, and perseverance of the students of his class. In every successive year up to the present he had uniformly to make a similar favourable report, and now for the twenty-first time, when he had come of age as a Professor of the Pharmaceutical Society, he could scarcely speak in too high terms of the students during the past year, and he felt satisfied that in each one that might succeed the students would continue to maintain their high character. He knew a good deal of other schools, and he could conscientiously state that the students of the Pharmaceutical Society would bear honourable comparison with those of the best of them. The regularity of attendance, good conduct, diligence, and perseverance of the students had thus become a stereotyped phrase with him. There was another circumstance which also gave him great pleasure, and one which must be gratifying to all who take an interest in pharmaceutical education, and that was the great increase which had taken place in the number of students attending his class, for during the last year no less than 132 students had availed themselves of his lectures. With regard to the terminal prize examination, there were eight competitors; he was sorry that there had not been more, but it was easily accounted for, from the fact that as the students of the class were in constant association with one another, they became acquainted with their respective attainments, and, therefore, frequently declined to compete with some particular student whom they felt assured would obtain the prize. He thought this was a great mistake, and he hoped that on future occasions more students would compete, for they should bear in mind that it was not so much the prize in itself, but the knowledge required in striving for it, which would be of greater value to them; and he would also remind the students that although only one could obtain the prize, certificates of honour and merit were given to all who came up to a certain standard. On the present occasion, three of the competitors had gained honorary distinction. The first in order of merit to whom had been awarded the Council Medal was Mr. Walter Henry Smith. This gentleman had highly distinguished himself, not only in the written examination but also in the *viva voce* one, having obtained 116 marks out of a total of 133. This was a very high percentage, and he felt sure that the future career of Mr. Smith would be an honourable one. The second in order of merit was Mr. John Ingham, who was only a few marks below his successful competitor, and he could, therefore, speak most highly of this gentleman, whom he felt was an honour to the profession of pharmacy. The third in order of merit was Mr. Frederick Beasley, who was also entitled to great credit for his answers at the written and *viva voce* examinations.

The questions for the written examination were as follows:—

1. Describe the structure of Epidermal Tissue and its Stomata.

2. Describe the physical and chemical characteristics of Chlorophyll. State where it is found, the conditions favourable to its development, and the changes which it undergoes at different seasons of the year.

3. Describe generally the internal structure and external appearance of a Monocotyledonous Stem.

4. Define the following:—Involucre, Thalamus, Receptacle, Disk, Cyme, Capitulum, Pappus, Gynandrous, Loculicidal, Septicidal, Follicle, and Legume.

* A fine specimen of the Castor Oil Plant, grown by one of the Examiners, Mr. A. Bird, was exhibited.

5. Enumerate the official plants of the Ranunculaceae. Describe the physical and chemical characteristics of the Rhizome and Rootlets of *Helleborus niger*, and show how they may be distinguished from the corresponding parts of *Aconitum spicata*.

6. What is the botanical source of Camboe? What is its geographical source? How is it obtained, what are its physical and chemical characteristics, and how may its purity be ascertained?

7. Describe the physical characteristics of *annulatus*, *striatus*, and *undulatus* *Ipecacuanha*. Mention their botanical and geographical sources, and to what their medical properties are due.

8. What are the botanical and geographical sources of Copalba? Describe its physical and chemical characteristics. Mention the substances used to adulterate it, and the means of detecting such adulterations.

9. Distinguish the *Solanaceae* from the *Atropaceae*; the *Compositae* from the *Dipsacaceae*; the *Asyncladaceae* from the *Ericaceae*; and the *Labiata* from the *Scrophulariaceae*.

10. Give the essential characters of the following Natural Orders, and enumerate the official plants which they respectively contain:—Papaveraceae, Cucurbitaceae, Rutaceae, Convolvulaceae, Olaceae, and Melanthaceae.

Besides the above questions, the several competitors were examined as to their practical knowledge of plants. Thirty-three were submitted to them, which they were required to name, to state the natural orders to which they belonged, to mention their properties, and to describe any peculiarities they might present worthy of notice.

The medal and certificates were awarded as follows:—

Bronze Council Medal—WALTER HENRY SMITH.

Certificate of Honour—JOHN INGHAM.

Certificate of Merit—FREDERICK BEASLEY.

In commenting on the Herbaria, Professor BENTLEY said that they had been founded by the Council to encourage the study of botany amongst young students during their apprenticeship. Up to the present time, botany had not been a very popular study amongst young students; but Professor Bentley thought that the tide had now turned, and he believed that but very few years would elapse before botany would be universally taught in all our great schools. He was glad to mention that on the present occasion five herbaria had been sent in for competition, and honorary distinction had been conferred on the collectors of three of them. The Silver Medal had been awarded to Mr. Henry William Jones, an apprentice of Mr. Southall, of Birmingham, for a collection of 471 plants. It was a very meritorious collection; and when it was remembered that the plants had been collected, and most of the work connected with their arrangement, etc., had been performed out of business hours—early in the morning or late in the evening—he was sure, by the specimens now exhibited to the meeting, that everyone would agree that Mr. Jones eminently deserved his medal. The second collection in order of merit was that of Mr. George Frederick Stoodley, an apprentice of Mr. Jackson, of Crediton. This collection contained nearly 300 plants, and the collector was awarded a Bronze Medal, a distinction which he well merited. The third collection, which was forwarded by Mr. Ralph Tait Linton, residing with Mr. James Buchanan, of Edinburgh, although a small one, was deserving of much commendation, and to Mr. Linton a Certificate of Honour was therefore awarded. Professor Bentley, after congratulating the successful competitors for their well-deserved honours, concluded by hoping that next year he might be at least able to give as good a report as at present upon the competition for the Herbaria Prizes.

Five herbaria were received in competition, and the following awards were made:—

Silver Medal—HENRY WILLIAMS JONES.

Bronze Medal—GEORGE FREDERICK STOODLEY.

Certificate of Honour—RALPH TAIT LINTON.

Most of our readers will be glad to learn something respecting the new chair of Practical Pharmacy; full particulars are therefore here presented. Great anxiety has

been manifested as to the working of this important branch of our educational system.

Professor ATTFIELD, who was received in the most cordial manner, stated that the class to which he had the honour of drawing attention, was that of Practical Chemistry. Last session, ninety gentlemen had studied chemistry experimentally in the laboratories of the Institution. They had worked from ten o'clock in the morning to five in the afternoon—in some cases half that time—for periods varying from two to ten months, the average term being a little over five. Each student experimented independently, though all worked on a common plan, namely, that of putting together or pulling to pieces every chemical substance employed in medicine. They did this, not necessarily that they might become builders or breakers—manufacturers or analysts—of chemical structures, but in order to be perfectly familiar with the principles on which the grand edifice of chemistry is raised, and thus be able to apply those principles in the daily practice of pharmacy, where chemistry is encountered in nearly every operation. With regard to the manner of working, more would be learned by personal inspection of the laboratories, than by the most detailed description. Any lady or stranger present having a son, brother, or friend, who had studied there, or now occupied a table, would find the place to be one of considerable interest. Each bench was then in the state in which it had been left at closing time that day, and any evidence it afforded of tidiness or method might be attributed to the name attached. The only new feature in the management of the laboratory during the past session was the organization of a system of class examinations. Twice a week those students who had progressed to about an equal extent were examined by the speaker on stated chemical subjects. While daily and hourly oversight of the students gave a Professor of Practical Chemistry opportunities of assuring himself that the pupils worked usefully and thoroughly, these examinations showed him whether or not the learners completely comprehended the principles which the operations were designed to teach, and thus enabled him to advise his men to greatest advantage. The classes were remarkably well attended, indeed, were soon found to give candidates for the “Minor” and “Major” confidence and success before the Board of Examiners, and hence became highly popular. Professor Attfield announced that he intended to continue these examinations during the ensuing session.

The usual examination for prizes was held on the 22nd and 23rd of July. Mr. John Ingham, who had obtained the first place, was the junior Bell Scholar of the year. Great expectations were formed of Bell Scholars, for they obtained that position by competition, and, it might be hoped, caught something of the spirit of the great worker in whose memory the scholarships were founded. In Mr. Ingham their anticipations had been realized; he now shone as a double, and almost a triple medallist. In Practical Chemistry he had gained 100 per cent. of the marks by which the value of his answers was expressed. The second man was Mr. George Iredale, whose treatment of five of the six questions was perfect; and who, had not his last analysis been spoiled by accident, would have trodden on the heels of the winner of the Council Medal. Messrs. Joseph Hicking, William Wyley, and Edward Histed, had gained between 60 and 70 per cent. of the accorded marks, and richly deserved their Certificates of Merit.

The following questions were given:—

1. The “Solution” given to you may contain any of the ordinary metallic salts used in medicine; analyse it, and state the results.
2. The accompanying “Powder” is also a mixture of common metallic salts; examine it, and report your conclusions.

8. You are furnished with what you may regard as a "Vomit" suspected to contain one of the following poisons:—mercury, arsenic, antimony, lead, copper, oxalic acid, hydrocyanic acid; which is present?
9. A specimen of "Urine" is placed before you; is it morbid or healthy?
5. "Solution of Arsenic." Ascertain by volumetric analysis how much arsenic (As_2O_3) may be obtained from 100 parts by weight of this liquid.
6. "Solution of Perchloride of Iron." Estimate, gravimetrically, the percentage of Iron in this preparation.

The following were the awards declared by the Council:—
 Bronze Council Medal—JOHN INGHAM.
 Certificate of Honour—GEORGE IRDALE.
 Certificates of Merit—JOSEPH HICKING, WILLIAM WYLEY,
 and EDWARD HIXED.

As soon as the prizes had been awarded, Mr. DEANE rose to deliver the Introductory Address. It was thought last year that sufficient distinctive notice had not been taken of successful students, and that a public welcome would prove a grateful stimulus. It was wished, therefore, that not only should the merits of former pupils be officially recognised, but that words of counsel and encouragement should be addressed to those entering on their career.

For such a task no better man could have been chosen than Mr. Deane. We may say, without exaggeration, that there is no one more personally beloved throughout the ranks of Pharmacy. He realises the definition of a gentleman, one who makes others happier by his being present. Yet the applause which greeted him possibly astonished others as much as it did himself. Then let it be recollected (that which a large section of our Society are not likely to forget) that some years ago, having a name to lose, and a position to imperil, he did not hesitate to share the hopes and fears of men of a younger generation. He came amongst them, not as a frigid delegate wrapped in clouds of his own manufacture, but content to associate on terms of intimate friendship, may, even to accept his share of that harmless pleasantry which is so assiduously cultivated once a year at the British Pharmaceutical Conference.

The Address speaks for itself, and will be found elsewhere. It discusses the advance of Pharmacy and professional status, the working of the Pharmacy Act of 1868, and the Examinations. Latin is discovered not to be a dead language, Greek is a desirable acquirement, and English literature is of the greatest importance even to chemists and druggists. The Museum and Library come next under notice. If viewed as mere collections of substances used in medicine, or as a row of volumes nicely bound, neither will be of service. The perusal of quaint old authors, such as Gerard and Pomet, may form amusement and instruction in after-life, but attention is specially directed to books written before manuals were invented, and more particularly to the Pharmacologia of the late Dr. Paris. "The Historical Introduction" has scarcely its equal in the literature of Pharmacy, and the whole work has been a source of uninterrupted plunder from the date of its first edition. Cramming, it appears, deserves the wrath of Heaven, as also superficial knowledge. Good advice is given as to the best mode of study, while social considerations are not neglected. *Tell me with whom thou goest, and I will tell thee what thou doest*, might be the *précis* of the last paragraphs.

Mr. DEANE concludes by recommending those intellectual avocations from which it is known he has reaped so much enjoyment:—

"In these pursuits (the study of natural phenomena), rather than amongst the distracting influences termed amusement, you will find your healthiest recreation. And in the hours of weariness that fall to the lot of every man, you will find in them solace and comfort that will amply repay, if that were necessary, any labour you may bestow in making yourself familiar with things of Nature.

"I seem to have occupied your time in the repetition of mere truisms, and to have told you only what has been better said times without number; and after all, what is there that any of us can add to that broad scheme of moral discipline, which was propounded eighteen hundred years ago? Strive to live up to that standard, and, in so far as you succeed, you will attain to truest wisdom."

The lecture ended, as it began, amidst vehement applause. Dr. GREENHOW moved the vote of thanks. He said it was his privilege that evening, at the President's request, to propose a vote of thanks to Mr. Deane for the admirable address to which they had just listened. He was sure that the whole meeting would cordially join in such a vote, for it was impossible that the large body of students present could have received advice better calculated to benefit them. They had only to follow out the spirit of that advice in order to ensure success in their present studies, and to render themselves eminently well fitted for their future duties in life. He (Dr. Greenhow) had undertaken the task laid upon him with some reluctance, because he was quite unprepared for it, and, appearing among them as he did for the first time on that evening, he felt he had in reality very little to say. At the same time the position that he now held in relation to their society (from having been appointed, under the Pharmacy Act of 1868, Government visitor or assessor to their examinations) seemed to require his saying a few words, and he would first touch on one point of Mr. Deane's address, with reference to the early education of pharmaceutical students, which he considered of great importance; he meant the necessity for the acquisition of a certain amount of classical knowledge. Perhaps there was not so much to be said for Greek, but a competent acquaintance with Latin was indispensable, even in a strictly business point of view, for men who were called upon to make up the prescriptions penned by learned members of his own profession. He did not know how they could have collected such a number of illegible prescriptions as he had seen in that building, and he could only say that, if they were fair samples, it behoved pharmacists to have a very competent knowledge of Latin, indeed, in order to enable them to make out cabalistic signs which they could not readily decipher.

With respect to the society itself, his recent acquaintance with its working, and his own position with reference to it, rendered it a matter of obvious propriety that he should not, on that occasion, forestall the report which it would, at a future time, be his duty to make to the Privy Council. He might, however, without impropriety, say that he had observed with great satisfaction the conscientious and searching mode of conducting the examinations, and that he thought the anxiety of the Council to increase the stringency of their curriculum afforded the best possible earnest of valuable results to the country from the exercise of the compulsory powers vested in the Pharmaceutical Society by the Act of 1868. They had already done much to raise the standard of pharmaceutical knowledge whilst their examinations were only voluntary, but now that these had been made compulsory, there was the best prospect that the higher standard would become general, instead of being only reached by a few.

And, lastly, he must say a word on behalf of his own profession. It was quite true that as long as he had been a practising physician there had always been houses in London, such as those under the direction of some of the gentlemen he saw around him, from which medical men could feel perfectly satisfied that their patients would obtain genuine preparations of whatever medicines they might judge it necessary to prescribe; but even in London, up

to comparatively recent times, they could have no such confidence in the ordinary chemists and druggists, and in the country, at least, in out-of-the-way places, it was not too much to aver that chemists in whom they could place similar reliance were seldom or never to be found. He trusted that in the course of years the system which had grown out of this state of things would gradually be entirely changed, and that, in all but the smallest villages, there would be found duly qualified pharmacutists to relieve the general practitioners of medicine who were themselves rapidly rising in education and professional status, from the additional drudgery of writing their own prescriptions after a hard day's work of attendance on the sick. Although pharmacy was not strictly a branch of the medical profession, it was an essential adjunct, and it was in the highest degree desirable for the progress and success of the healing art, that medical men should be enabled to devote their whole time and attention to treating the sick, leaving to pharmacutists their own proper function of supplying the materials for treatment.

More cheering, indeed very much, in acknowledgment of the free compliment thus offered to our examinations. Then we went away, one to his farm and another to his merchandise, not without indulging the hope that "the old man eloquent," living as he does near a Junction where geography has been omitted, has ere now reached his home. JOSEPH INCE, Reporter.

INTRODUCTORY ADDRESS,

DELIVERED OCTOBER 6, 1869, BY HENRY DEANE, F.L.S.

IT is a pleasant custom, and one which is, or ought to be, productive of kindly relations between the students of an institution like the Pharmaceutical Society and those under whose direction they are to pursue their course of instruction, that they should meet face to face at the beginning of a session, on the broad ground of a common friendship dictated by a common interest. Were any other relation than this implied, I dare not have appeared before you in the character of mentor this evening, but, yielding to no man in affectionate regard for my younger brethren entering a laborious and ill-paid profession, I could not with a clear conscience have declined to accept the duty laid upon me by my colleagues, though I might secretly doubt their wisdom in the selection of a spokesman. If I have any claim of my own upon your attention beyond that which an abiding sympathy confers, I must lay it to the fact that I have endeavored ever since the foundation of the Society to advance the cause of pharmaceutical education, and that I now begin to see around me results neither trifling nor insignificant from the labour which I have watched during twenty-eight years. In the long, persistent effort of which these results are but the crown, I have taken a share, though it may be only a small one; and if my observations on the present occasion have little of novelty, and less of exciting interest, you may be disposed to bear with them kindly for what value they may possess as the dictates of an experience extending over the whole of this period.

Let us ask ourselves, to begin with, what progress have we made during the year in which the extended powers of the Society have been in operation? From our own point of view, has the condition of pharmacy been advanced? On the other hand, are we nearer to a recognition on the part of the public of that professional status to which we aspire? These are questions for ourselves individually; and, if each of us can answer that he has done his best for the honour of the body to which he belongs, we need not doubt that we

have collectively progressed. The estimation in which we are held by on-lookers will follow naturally the efforts made by ourselves to attain a higher standard. Let us bear in mind that the atmosphere of science by itself does not engender professional feeling; that the grand ethical maxim which determines the qualification is but the second great commandment, "Thou shalt love thy neighbour as thyself," in its bearing upon our daily conduct towards others engaged in the same avocation; and that we shall attain to honour only as we shun dishonour.

We have already seen how large an amount of good may be expected from the Pharmacy Act of 1868, but we must bear in mind the fact that the future depends upon ourselves far more than on legislative interference; and to no single portion of our functions have we so much cause to look with solicitude as to our examinations. In the earlier years of our existence as a corporate body the passing of examinations was optional, and therefore comparatively few availed themselves of the advantages consequent on the systematic training they involved; and thus they became in reality an evidence of a thirst for knowledge, quite as much as a test of the amount of information acquired. And we have precisely the result which might have been anticipated: the men who had the wisdom to see the advantage of submitting to what was then a voluntary ordeal, and the courage to face it, now stand in the front rank of our profession, as men similarly actuated will always do, whatever vocation they adopt. The growth of public opinion and the steady increase of enlightenment amongst those practising pharmacy is shown in a remarkable manner by a reference to the number presenting themselves each successive year for our various examinations. Indeed, so regular was the increase up to the time of the passing of the late Act, that there seemed a *prima facie* ground for the opinion, urged by several thoughtful members, that there was but little need for additional parliamentary powers, and that it only required time, and perseverance in the course which had been followed since the commencement of the Society, to obtain a footing for scientific pharmacy, as satisfactory as any legislation could bring about. This position might have been easily defended from the narrow point of view which embraced only the interests of the examined men, but nothing short of the compulsory examining powers now obtained could have raised the Society to its present position as a national institution, and no smaller instalment could have satisfied its aspirations for the future.

I am disposed, as an old member of the Board of Examiners, to dwell at some length on matters which have forced themselves on my notice in connection with this particular department. The most onerous duties of the Board during the past twelve months have consisted in the special examinations arranged for those who, as assistants before the date of the Act, had a fair claim for a certain amount of indulgence. Some reflections have been thrown from time to time, on this "Modified" test, but it must be remembered that the class who alone could take advantage of it, had a distinct vested interest in the business, and consequently possessed rights which the Society was bound to respect. I need not, before an assemblage of students preparing themselves for the higher examinations, dwell on the provisions of this particular ordeal, but I must express a general acquiescence in its justice, and insist upon the fairness of the standard of practical information upon which it is based. My present object is rather to dilate upon the deficiencies which I have observed in the course of my duties in conducting the examination of regular students, and to point out, if I can, the causes whereby they originate, and the course by which they may be avoided. The defects we

have most to deplore, especially in junior students, are attributable to insufficiency of early education, and especially to the neglect of classical knowledge. It is a fact patent to all who have been brought in contact with apprentices or pupils, that youths with a desire for a gentler calling than that of the common tradesman, are placed in situations in which they are supposed to learn pharmacy with but scant allowance of that mental training which is regarded as essential to a gentleman; and whilst the new regulations of the Board of Examiners necessitate a larger and more liberal education in future, it is still worth while to inquire how those who have already cast in their lot with us, may qualify themselves for the position which they ought ere long to be able to assume. To such as may feel themselves to be within this category, I would say, you are still young, and if you will give but a portion of each day to the study of English literature and of those ancient languages which are the delight of intellectual men, you may yet make for yourselves a sound basis for future learning. It is not the mere acquaintance with a Latin or a Greek author that is of importance, but the humanizing influence the study brings with it, and the widened mental capacity which is its invariable result. Your time so employed may not seem at the moment to yield a return adequate to the labour involved, but, believe me, the recompense is certain and manifold, and will endure for your whole after life. No bread cast upon the waters will more surely yield its increase in the future. With reference to Latin in particular, it is an integral and necessary portion of your education; as practical pharmacists, you cannot safely neglect it if you would, and it is surely worth while to pursue it as a source of enjoyment rather than as task-work. Were the study of Latin undertaken in a right spirit, the amount of time that is often spent in gaining that modicum of knowledge which so frequently fails to serve even the purposes of the examination-room, might be made instead to yield a solid ground-work, not deep or profound, but compact and full up to its limit and serviceable to higher ends than the mere translation of prescriptions.

A foundation of common "school-learning" must be laid before a student can make satisfactory advances into the special branches of knowledge which constitute technical education in any of its developments. Our "preliminary" or "classical" examination embraces these subjects, and is intended to secure a sound elementary acquaintance with the various branches comprised in what is termed a liberal education.

The peculiar advantages offered by this Institution exist in the variety of its facilities for the study of those departments of science, which collectively are comprised in the word Pharmacy, and may be said only to be properly available when the preliminary stage is passed. Lectures, demonstrations, and laboratory practice are the primary elements of the curriculum you are commencing, but they form only a small portion of the opportunities you may enjoy, if you will supplement the instruction of the classroom by reading and observation. In this aspect it is impossible to over-estimate the advantage of a MUSEUM and LIBRARY like that within your reach; but so long as the former is to you a mere collection of substances used in medicines or the arts, and the latter only an assemblage of well-bound and well-arranged volumes, you can scarcely be said to be aware of their existence. My observation would lead me to believe that neither the Library nor the Museum are sufficiently used by our students. In the Library you have opportunity of direct reference to standard authors whose works are too costly for the ordinary reader to purchase or too rare to be found in private collections. Only

those who know the delight of tracing an oft-repeated observation to its original author are aware of the value of information obtained first hand. By this I do not mean to insist on the study of quaint and now, perhaps, obsolete volumes like Gerard or Culpepper, Gesner, Pomret, or Parkinson,—these may form amusement and instruction for leisure hours in after life,—but rather to some of the great authors who lived immediately before the days of manuals and text-books, to whom too little honour is now accorded. I may be wrong in the estimate I set upon works which were the companions of my early days, but I would ask any one who may be disposed to question this dictum, where he will find a book of recent publication with the same amount of instruction so pleasantly given as the "Pharmacologia" of Dr. Paris, a work which has been quoted with or without acknowledgment by half the more modern writers on the subjects of which it treats. This is but a type of the literature that I would recommend to your notice; time precludes my enlarging on the subject, else there are a dozen authors in the same category I might cite as worthy your reverent study.

A museum is only of value to the student in so far as it receives his systematic attention. It is useless to walk round a *Materia Medica* cabinet, observing merely the exceptionally fine specimens which attract the eye in passing, and regarding the whole as an assemblage of curiosities. The true value of a collection like that in the possession of the Society, lies in the opportunity it affords for illustrating the subjects of your reading. Study the specimens series by series, book in hand; impress by visual observation, facts too readily forgotten when learned by reading only; endeavour now, whilst your observing powers are most active to collect that sort of knowledge which will enable you to detect differences in the external appearances, in the physical characters, and in the structure of the substances with which you will be most concerned in your occupation as pharmacists. You will do this nowhere so well as in a Museum like ours, where, thanks to the labours of the late Dr. Pereira, the late Mr. Herring, Mr. Morson, Mr. Squire, Professor Bentley, and many others who have lent willing aid, you have an assemblage of specimens possibly unequalled in Europe.

The exercise of the observing faculties you will thus be led into forms the natural antithesis to that waste of energy you term "cramming." I can scarcely trust myself to speak of a process so dishonest in itself, so unworthy of any rightly-minded student, as that implied in the significant, if somewhat inelegant epithet: indeed I do not know that a word more appropriate, from the very disgust which it occasions, could be coined to meet the case.

It is too often as a fancied antidote to neglect of duty in the early or mid-portion of a student's career that this process of cramming is resorted to, and it may thus be regarded as a natural sequel to idleness. Montaigne, in one of his charming essays, has well described the state of mind induced by laxity of mental discipline. He says, "As we see ground that has lain fallow, if the soil is fat and fertile, produce innumerable sorts of wild herbs that are good for nothing, for want of being cultivated and sown with seeds proper for our service; even so it is with our minds, which, if not applied to some particular subjects to check and restrain, rove above confusedly in the vague expanse of imagination." Above all things avoid this desultory half-hearted work, which is in reality but idleness. Learn a little, if you have not the opportunity to learn much; but whether it be much or little, learn with mastery. The rapid acquirement of superficial knowledge, the tax of the memory for a temporary purpose, to a degree beyond the capacity for assimilation, cannot be of any permanent benefit. The

recollection of this fact will do much to remove the temptation to trust in a great exhaustive effort for results that only diligence and constancy will rightly ensure.

As to the mode in which you pursue your studies, accept the advice of your professors, and follow it out with your whole heart. You can show your appreciation of their instruction in no way better than by asking for more. They have no interest beyond your advancement; their crown is in your intellectual prosperity. Do not omit, on the fancied ground of intrusion, to ask for explanation of whatever you do not rightly comprehend in connection with their discourses. Nothing is so discouraging to a lecturer as the lack of earnestness in his audience, which, if it exists, manifests itself in a hundred different ways. The look of submission rather than enjoyment, the furtive observation of the timepiece, unpunctuality in entering and eagerness to leave the lecture-room, are symptoms that drain the enthusiasm of a teacher. If in the presence of these discouragements a lecturer may appear to fail to carry his class with him, the fault is chiefly their own. If your own interest is not sufficient to stimulate you to the endeavour to obtain the largest amount of advantage during this most important period of your life, recollect that you are not alone in the world, and that you owe much to those by whose means you enjoy the advantages before you. No good was ever done in the world without self-denial, the bitterest of Christian virtues in practice, but the one that soonest of all yield sweetest fruit.

Do not suffer yourselves to be led away from what you know to be right by associates, well-meaning though they may be, who, nevertheless, do not show by their conduct that they have grappled with the great problems of their existence. "Be very circumspect," says an old author, "in the choice of thy company. In the society of thine equals thou shalt enjoy more pleasure, in the society of thy superiors thou shalt enjoy more profit," and this is equally true in its moral and intellectual application.

In the address that was delivered in this room, a year ago, prominence was given to the importance of the study of natural objects and natural phenomena, as a corrective to the habit of mind engendered by application to the purely physical sciences, and more especially to the hardening materialistic influence of commercial cares. I may, without impropriety, insist on the truth of what was then urged. My own business cares have been as varied and unceasing as those which fall to the lot of most men. Few have had less time or opportunity for the prosecution of such studies, or for observing nature away from the haunts of men, and, possibly, it is for this very reason, that the bye-hours which I have been able to devote to them have been amongst the most precious of my life, and have afforded that mental relief which is essential to a healthy condition of the intellectual faculties.

It is needless for me to dwell at length on a proposition that seems so self-evident, and I should scarcely have thought it necessary to introduce the subject at all, but for the fact that such occupations are neglected on the imaginary ground of want of time. A country stroll of half-an-hour will yield material for thought and investigation available for many a day.

"For love of nature dwells not in the heart
Which seeks for things beyond our daily ken,
To bid it glow. It is in common life
And objects most familiar, we find
Exhaustless matter for our privilege—
Our glorious privilege of reading God
Amid His bright creation."

In these pursuits, rather than amongst the distracting influences termed amusement, you will find your healthiest

recreation. And in the hours of weariness that fall to the lot of every man, you will find in them solace and comfort that will amply repay, if that were necessary, any labour you may bestow in making yourself familiar with things of nature.

I seem to have occupied your time in the repetition of mere truisms, and to have told you only what has been better said times without number; and after all, what is there that any of us can add to that broad scheme of moral discipline which was propounded eighteen hundred years ago? Strive to live up to that standard, and insofar as you succeed you will attain to truest wisdom.

For my own shortcomings I would apologise in the words of the worthy Puritan Francis Quarles; and strive to justify the insufficiency of my homily by its good intentions. I devoutly trust that "If it add nothing to your well-instructed knowledge, it may bring something to your well-disposed remembrance; if either I have my ends, and you my endeavour; the service which I owe and the affection which I bear you challenges the utmost of my ability; wherein if I could light you but the least step towards the happiness you asume at, how happy should I be? Go forward in the way which you have chosen; wherein, if my hand cannot lead you, my heart shall follow you; and where the weakness of my power shows defect, there the vigour of my will shall make supply."

MEETING OF THE COUNCIL, September 1st, 1869.*

MR. H. SUGDEN EVANS, PRESIDENT, IN THE CHAIR.

Present—Messrs. Carteighe, Dymond, Edwards, Hills, Mackay, Morson, Orridge, Sandford, and Stoddart.

The minutes of the previous meeting were read and confirmed.

The report of the Finance and House Committee was presented, showing on the General Fund account a balance in the Treasurer's hands of £1,887 0s. 9d., and submitting for payment accounts, and various items amounting to £709 19s. 8d., and on the Benevolent Fund account a balance of £414 16s. 10d.

Resolved,—That the report be received and adopted, and payments made.

In consideration of the heavy expenses incurred annually in publishing the Register of Chemists and Druggists, a question arose as to the expediency of purchasing type for the same, which might remain in form, and it was moved by Mr. Mackay, seconded by Mr. Morson, and

Resolved,—That the subject be remitted to the Finance Committee.

The reports and proceedings of the Library, Museum, and Laboratory Committee, and the Parliamentary Committee were received and adopted.

On the report and recommendation of the Board of Examiners, the Pereira Medal was awarded to George Conder.

It was moved by Mr. Mackay, seconded by Mr. Edwards, and

Resolved,—That an additional Dispensing Counter be provided for the use of the Examiners.

In reference to the arrangements for the First or Preliminary Examination,

It was moved by Mr. Mackay, seconded by Mr. Dymond, and

Resolved,—That the Local Secretaries be and are hereby appointed to superintend the writing of the answers to the questions sent by the Board of Examiners for the First or Preliminary Examinations in the country.

* From the *Pharmaceutical Journal*.

A letter was read from the Secretary of the Pharmaceutical Society of Austria inviting the Pharmaceutical Society of Great Britain to send two or three delegates to the International Congress to be held in Vienna on the 9th, 10th, and 11th of September. The question having been considered,

It was moved by Mr. Hills, seconded by Mr. Carteighe, and

Resolved,—That the President and Professor Redwood be requested to attend the Congress as delegates from the Society, and that a sum of Thirty Pounds (£30) be voted to each to defray his expenses.

NOTICES OF MOTION (FOR OCTOBER).

Mr. Abraham—"That steps be taken to assimilate the laws which regulate the practice of pharmacy in Ireland and Great Britain respectively."

Mr. Dymond—"That as the universally expressed feeling of the anniversary meeting was in favour of the publicity of the proceedings of the Council of the Society, it is expedient that its proceedings be fully reported in the 'Pharmaceutical Journal,' and that reporters desiring to represent other Journals be permitted to be present, but that any portion of the proceedings which the Council shall declare to be unsuited for publication shall not be reported."

Mr. Orridge—"That in the opinion of this Council it is due to the constituent body that after the completion of the present series of the 'Pharmaceutical Journal,' the ensuing issue should be made fortnightly."

THE AMERICAN PHARMACEUTICAL ASSOCIATION.

THE CHICAGO MEETING.

THE seventeenth annual meeting of the American Pharmaceutical Association was held at Chicago, commencing on the 7th of September, and occupying in all four days, and six sessions. We have abstracted from the *Pharmacist*, an ably-conducted periodical published in that city, and to which we have before been indebted, the following details of such of the proceedings as are of general interest. We shall, probably, in future have the opportunity of giving at length some of the papers read on this occasion.

Professor Parrish, of Philadelphia (the President of the Association) being absent, his place was occupied by the first vice-president, Mr. Ferris Bringham, of Wilmington, Delaware. Professor J. M. Maisch, of Philadelphia, the permanent secretary, "officiated." The first business transacted was the election of sixty-two new members, and the next the approval of the credentials of delegates representing the following colleges of pharmacy:—Massachusetts, New York, Philadelphia, St. Louis, Kansas, Cincinnati, and Chicago. There were also delegates from the Saginaw Valley Pharmaceutical Association, and from the Alumni Association of Philadelphia College of Pharmacy.

The SECRETARY read a letter of acknowledgment from M. Boullay, of Paris, accepting an honorary membership of this Association, written by himself in his ninetieth year; and also a letter from the distinguished Professor Ehrenberg, of Berlin, in answer to an address sent him by the Association, on the occasion of the completion of the fiftieth year of his doctorate. Both communications were flattering to the Association, and expressed the warmest approval of its objects, and hopes of its continued prosperity. They were received with applause.

PROPOSED LEGISLATION.

The Chairman of the Special Committee, W. WRIGHT, jun.,

chosen at the previous session to draft a law regulating the practice of pharmacy, to be submitted to the legislatures of the several States, submitted a printed draft of such law. It was handed to the members for examination and discussion during the session.

The following is a synopsis of the proposed law to regulate the practice of pharmacy and the sale of poison, and to prevent the adulteration of drugs and medicines:—

Section 1 requires that all shops kept open for the sale and dispensing of medicines and poisons, shall be under the oversight of a registered pharmacist or assistant pharmacist.

Sections 2, 3, and 4 require that no person shall use or exhibit the title of pharmacist or assistant pharmacist unless registered according to law; that no one can register unless a graduate in pharmacy, a practising pharmacist or assistant pharmacist; that graduates must be from some college of pharmacy in the United States, or from such institution in a foreign country.

Sections 5 and 6 require the appointment of a Pharmaceutical Board by the Governor of each State, and that this board shall examine all candidates for certificates, and cause all prosecutions, and that all members shall pay ten dollars to the board.

Section 8 requires that all registered pharmacists shall furnish their addresses, for which a fee is to be paid. All changes are to be duly sent to the board.

Section 9 imposes a penalty for any false representations in the procuring of registration, by imprisonment from three to twelve months.

Section 10 imposes a fine of fifty dollars for the offence of selling any drugs or medicines unless he be a registered pharmacist, to be paid to the board.

Sections 11 and 12 authorise the fining of any pharmacist for refusing to comply with the regulations of the board. This is not to interfere with the acts of any practising physician in the line of his profession.

Section 13 imposes a restriction on the sale of any medicines or poisons, unless the name of the same be placed on the bottle, and the address of the seller. It is the duty of all persons so selling to have the address of the person purchasing, and his name, with a statement of the objects such medicines or poisons are to be used for.

Sections 14, 15, and 16 prohibit the adulteration of any medicines, and require that all prescriptions shall be kept in a book for five years. For adulteration the fine may be 1,000 dols., and imprisonment may be inflicted.

Dr. E. R. SQUIBS, of Brooklyn, read a portion of his interesting and instructive report on the Pharmacopoeia, which was received with much favour. Its further hearing and discussion thereon will occur during the session.

The President's annual address was then read by the CHAIRMAN, and this concluded the first day's work.

In the evening, a reception was given to the members of the convention, their ladies and invited friends, in the parlours of the Tremont House.

On the following morning business was commenced at 9 o'clock, and the following resolution was unanimously passed:—"That the faculty of Rush Medical College, of the Chicago Medical College, and the medical profession at large, be invited to be present at our sittings."

THE ANNUAL REPORT.

The annual report of the society was then read by the treasurer, Mr. CHARLES A. TUFTS, and was accepted without debate. The following are the essential parts of the report:—

"All the bills of the association for the past year had been paid, and there was still a balance of 23 dols. 63 c. due on

the books of the association. The present number of members was 765, of which number 83 had become members during the year 1898. The total number of contributing members was 607. In consequence of the failure of the members to answer the repeated letters sent them, it was impossible to state the number of life members.

"In 1866, the proceedings had cost 1,038 dols. 15 c., and the expenses were 552 dols. 45 c.; in 1867, the proceedings had cost 1,508 dols. 32 c., and the expenses 552 dols. 45 c.; in 1868 the figures were 1,724 dols. 47 c., and 1,065 dols. 46 c. The expenses for the present year will be increased in proportion, and even the payment of the 3 dols. due from each member will leave but a small margin in the treasury. It is hoped that the members will bear this in mind, and pay up promptly. The report recommends that in future the usual copy of the proceedings be withheld from all who are in arrears, until such arrears shall be cancelled."

The officers of the Association for the next year were then elected, Mr. E. H. Sargent, of Chicago, being unanimously chosen President.

SPECIAL REPORTS AND PAPERS.

Dr. HOFFMANN, of New York, read the report of the committee on the Progress of Pharmacy. It treats on the following topics:—

1. Sketch of the general progress of pharmacy and collateral sciences. 2. Practical pharmacy. 3. Pharmacognosy, or materia medica. 4. Pharmaceutical chemistry. 5. Pharmaceutical legislation, statistics, etc. 6. Obituary.

In the domain of practical pharmacy a new chapter on secret medicines was introduced, and the analysis of some of them given. The practice in Germany, with regard to the sale of illicit nostrums, was recommended.

Mr. TAYLOR, of Philadelphia, moved the appointment of a committee of five, to report on the specimens now on exhibition. The motion was carried.

Dr. SQUIBB, of Brooklyn, then read the continuation of his voluminous report on the revision of the Pharmacopoeia.

Some discussion followed regarding the sweeping reduction of the materia medica list; the report was accepted, and referred to the Executive Committee.

A discussion arose as to whether the ordering of the report to be printed carried with it the endorsement of the convention. It was decided not, and that the report stood only on its own merits as an individual report.

An invitation received from the management of the Rush Medical College, to visit that institution, was received and accepted by the convention.

An invitation was read by the secretary, from the Metropolitan Glee Club, inviting the members of the convention to participate in their excursion to St. Joseph, Mich., upon the steamer *Orion*, at 8½ o'clock Saturday morning.

On motion, the thanks of the convention were tendered the club for their invitation, and the invitation was accepted.

On the afternoon of the same day the Association met again, and appear to have given themselves up to pharmaceutical subjects.

Dr. SQUIBB, of New York, read a paper on Rhubarb. The writer spoke of the decreased cost and improved quality of the article. He exhibited several samples of his own preparation, believed to be wholly free from any deleterious admixture. It was strongly urged that no drug be purchased in a powdered state.

Dr. SQUIBB read a paper on Collodion, by Mr. F. C. Musgiller.

The list of queries was then read. Few of those who had accepted them were ready to report. Query eight was the first taken up, and read as follows:

Query 8. What kind of glassware is, on the whole, best adapted to shop furniture; what shapes are to be preferred for salt-mouthed and tincture bottles, and what kind of dispensing and prescription bottles are best; with practical remarks upon the glass manufacture in its bearings upon pharmacy? Accepted by Thomas S. WIEGAND, of Philadelphia, who read a paper on the subject.

Query 9. Whence are the corks of commerce derived, and where are they cut; with general observations upon the commercial history of corks and corkwood?

Mr. P. W. BEDFORD, of New York, read a paper upon the subject. The commerce flourished almost exclusively in the south-western portions of Europe, more particularly in Spain. The corkwood was grown in Algiers and Australia. It had been attempted to cultivate the cork oak in California and in the southern states, but without great success, as some twenty-five years was required before the young tree was ready for use. The main trade now was from Spain and Portugal. The method of curing was briefly touched upon, and also the amount and value of the trade to New York. The speaker denied that the quality of the corkwood received was deteriorating. It varied greatly, however, in quality, as the prices abundantly indicated. The corks were cut in the hamlets near the region where the wood is grown. Previous to 1855, all corks were cut by hand, but now the work is done by machinery.

Query 10 was taken up. What strength of alcoholic menstrua are best adapted to the officinal gum resins with reference to producing permanent preparations less incompatible with aqueous diluents than the present officinal tinctures? Accepted by ALFRED B. TAYLOR, of Philadelphia, who read a paper upon the subject.

Query 11. Which of the preparations of the late edition of the Prussian Pharmacopoeia are preferable to like preparations in our own; and what new drugs and preparations in that standard should be transferred to the United States' Pharmacopoeia, out of regard to the numerous German practitioners in the United States? Accepted by F. VICTOR HEYDENREICH, of Brooklyn, who recommended the partial adoption of the Prussian preparations.

Query 12. What are the sources of asphaltum of commerce, now so largely used in roofing, and what uses is it capable of in pharmacy? Mr. MARKOE, of Boston, spoke briefly upon this subject.

Query 15. What is the best substitute for camphor for the protection of woollens from moths and other insects, that will be cheaper and equally effective? Mr. MARKOE responded, recommending the use of naphthalene. Dr. SQUIBB recommended coal tar creosote.

A paper was read upon Query 20. *Lycopodium Clavatum* is said to grow in this country. To what extent is this true, and may the lycopodium sporules be collected from it for the supply of commerce? The writer was of the opinion that the drug could not profitably be grown in this country.

Professor John M. MAISCH, of Philadelphia, spoke briefly in regard to Query 30—Can a pharmaceutical preparation be made from the *lactuca elongata*, which may be used as a substitute for *lactucarium* and its preparations? The essay intimated that the thing was probable.

Mr. A. B. TAYLOR, of Philadelphia, read a volunteer paper on the preparation of fluid extracts.

In the evening, the Opera House Art Gallery was visited by the members of the convention, and a few pleasant hours spent in looking at the pictures. Vaas's band gave *clat* to the occasion by the rendition of popular music.

NEW DRUG LAW.

On the following morning (Thursday), the members assembled at 8 o'clock, and were photographed, instan-

taneously we should presume, forming our impressions from the enormous speed and earnestness which seems to have characterised their proceedings throughout. We wonder whether the picture will include any sleepy-looking faces in the group. An interesting discussion occupied this morning's sitting relative to the form of a new drug law, regulating the sale of drugs, for the United States. The bill proposed seems to have been very similar to our own Pharmacy Act, but at the meeting there was but little agreement among the members respecting its provisions, and the result was, as well as we can gather, that the suggested law was somewhat pompously buried under six resolutions, which expressed the opinion of the Association that qualifications for pharmacists were highly important, but that the difficulties of legislation were such that "we must be satisfied with enunciating the broad principles which in our judgment should direct" it. If our Transatlantic fellow-tradersmen should decide to have a bill of this kind, we would strongly advise them, from our own experience, not to be satisfied with enunciating broad principles, but to superintend the whole of the details of the bill as well, unless they have very much more confidence in the practical sense and foresight of their senators than we have reason to place in ours. Thursday afternoon was again chiefly occupied with some interesting pharmaceutical papers.

Professor G. F. H. MARKOE, of Boston, read a paper in answer to query:—"Are the extract and fluid extract of conium of commerce as inert as some recent writers represent, and can these preparations, made by the process of Pharmacopœia, be depended on?" The first portion of the query he denied, and the latter answered affirmatively. Dr. E. R. Squibb and Professor Maisch differed from Professor Markoe.

Mr. TAYLOR read a paper on oxalate of iron by D. S. Dyson, of Bloomington, Illinois, sustaining Dr. Schafer in his claim of having first introduced it into medical use.

Mr. MASSOR, of St. Louis, read a paper written by Thomas Fay, upon the work and duties of the chemist and character of the pharmacist.

Mr. VAN SWERINGEE, of Indiana, read a paper on the advancement of pharmaceutical science.

Professor MAISCH read a paper, written by J. S. Lemberger, of Pennsylvania, on the following query:—"In view of the scarcity and high price of cardamoms, may not *Asarum Canadense*, *Canella alba*, calamus and ginger, be used singly or combined in place of that aromatic in some official preparations at the next revision of the Pharmacopœia?" He answered and recommended affirmatively.

Professor MAISCH read volunteer papers by P. C. Candicus, of Mobile, on the new method of administering quinine, and by J. T. King, of Middleport, N. Y., on the deposits made by the tincture of rhubarb.

J. W. SMITH, of Philadelphia, read a paper on sweet Epsom salts.

In the evening, a microscopic exhibition was held at the Academy of Science, General Sheridan being mentioned among the visitors, and Messrs. R. and J. Beck, of London, among the exhibitors.

PHARMACEUTICAL ETHICS—SWEET QUININE.

The last of the meetings took place on Friday, Sept. 10, and was full of a certain kind of interest. After deciding between Richmond, Saratoga Springs, and Baltimore, in favour of the last-mentioned city for the place of next year's meeting, a set of resolutions were proposed by Dr. Squibb, of New York, and seconded by Mr. A. E. Ebert, of Chicago, relating to a question of pharmaceutical ethics, and enforce-

ing these with a real vengeance. In a former number we have alluded to "A so-called Sweet Quinine," manufactured and largely advertised in America by Mr. Frederick Stearns, of Detroit, which was recently exposed by Professor Wm. Procter to contain no quinine at all, but to consist of a mixture of cinchonine with some extract of liquorice, and to owe its sweet taste, or rather its absence of bitterness, to the almost entire insolubility of the former in water. Mr. Procter showed that the addition of a little acid developed at once the characteristic flavour of the cinchonine, and thus, perhaps, at the same time increased the medicinal value, and interfered with the popularity of this speciality. The resolutions referred to read as follows:—

"Whereas it must be an object of this association, in common with all others of a similar character, to oppose what is wrong within the sphere of its action and influence; and whereas the constitution of the association asserts that its objects are to elevate the standing, increase the knowledge, oppose the adulteration, and suppress the empiricisms of pharmacy; and whereas a member of this association has put forth a nostrum called "sweet quinine," which contains no quinine, and is therefore a fraudulent imposture; therefore, resolved, that Mr. Frederick Stearns has, in this so-called "sweet quinine," and in the advertisement concerning it, violated the sense of moral rectitude of this association, and has violated its constitution and the general purposes of its organization; resolved, that for these offences Mr. Frederick Stearns be expelled from this association."

Mr. STEARNS, of Detroit, then came forward. He said he felt it due not only to himself, but to the association, to say a few words. He said it was true that he had put a speciality into the market. He felt justified in doing so from two motives. 1. A pecuniary gain to himself. 2. A belief in the efficacy of his medicine. He explained what he believed his preparation to be, and hoped the society would not proceed to extreme measures.

Mr. A. B. TAYLOR, of New York, asked Mr. Stearns if he proposed to continue selling his preparation if the society passed the present matter over?

Mr. Stearns said what he had done, he had done. He wished to be judged by that. That was all that this association could reach. His future acts would speak for themselves.

Mr. EBERT read a letter written by Mr. Stearns to a Cincinnati journal, which contained heretical doctrines.

Mr. WRIGHT, of New York, thought that Dr. Squibb's resolutions of expulsion were rather too severe, and offered the following as a substitute therefor:—"Resolved, that in the manufacture and manner of advertising the article known as 'sweet quinine,' Mr. Frederick Stearns, of Detroit, has committed a serious offence against the ethics of this association, and is deserving of its severe censure."

Mr. TAYLOR, of Philadelphia, thought this a matter of principle. He was a member of the Committee on the Constitution. He stood there to urge the penalty of those laws. He was a personal friend of Mr. Stearns. To inflict any penalty upon him would be like plucking out his own right eye. He had great sympathy for Mr. Stearns. But the ethical code of the association must be upheld. If we are not strong enough to do it we had better cease to exist as an association. There are thousands who lie sick and dying, and who demand pure drugs. Mr. Stearns, as he says, went into this matter knowingly. He was always a great stickler for ethics. "I would have this association do by him as it would by me. It is a question of principle."

Mr. PROCTER observed that Mr. Stearns had had a chance to defend himself. He had shown a sincerity that relieved him from all moral obloquy. His was an error of policy rather than of principle. But still he could not fail to

regard this thing as a stab at the virtues of this association. The association must protect itself.

Mr. WRIGHT, of New York, wanted to know, if this matter of expulsion was carried out, how long this association could exist. How many members here would make their preparations up to the standard? Who was there that did not dilute their mixtures more or less?

Dr. SQUIBB was called upon, and replied that he had nothing to say. "Let him who is without offence cast the first stone." He had no desire nor heart to enter into the discussion.

A member moved that the vote be taken by ayes and noes. Carried.

Mr. A. B. TAYLOR moved that the chair order all the delegates to be present when the vote should be taken. Carried.

While the order was being enforced, a general discussion took place. One member said that, while apothecaries were selling liquors over their counters, thus encouraging intemperance, he could not vote for the expulsion of Mr. Stearns. Mr. Memminger stated that, however that might be, still he did not believe "that two wrongs could make a right." If there was any virtue in this association, a violation of its ethical code called for expulsion.

Mr. STEARNS said that he wished to be understood that he only was to be judged for the past. He had no promises to make for the future. He might have resigned, but he was no such coward. He wished the convention to act on the past. The future would take care of itself.

Several members then proceeded to speak in favour of Mr. Stearns; one said that his was no error at all, as he sold a weaker preparation at a cheap rate. Another wished to have the further consideration of the matter postponed until the next annual meeting. Still another said that Mr. Stearns himself wished this matter disposed of now.

Dr. SQUIBB said that if he had no higher motive in the introduction of those resolutions than the punishment of Mr. Stearns, they would never have been introduced. If the effect was to begin and end there, he would withdraw them at once.

EXPULSION OF A MEMBER.

The question was again called for, and the secretary proceeded to read the substitute, and then the chair put the question. The vote was taken by delegations, each member answering aye or no. The substitute favoured a vote of censure, and was lost—the vote standing, nays, 64; yeas, 30.

The question then arose on the original resolution.

It was moved to postpone the question until next year, in order to allow Mr. Stearns time to prepare himself, and to give him opportunity to stop the business altogether. Lost by a vote of 24 to 56.

The original resolution was then given another reading, and passed by a vote of 63 ayes to 22 noes.

The CHAIRMAN said that it therefore became his painful duty to announce that the resolution had been carried, and that therefore Mr. Frederick Stearns was expelled.

Mr. STEARNS came forward, gave up his card of invitation, and, with a voice choked with emotion, said, "I have been expelled hastily and without cause. I have been expelled for the past; you can judge of my future by what I do." He then withdrew from the convention.

ARRANGEMENTS FOR NEXT YEAR.

Mr. BRINGHURST offered the following resolution:—"Whereas the custom of giving expensive entertainments to visiting members by those residing at the place of meeting is at once onerous to the latter and detrimental to the

interests of this association; therefore, be it resolved, that the local secretary be instructed that the members of this association neither expect nor desire any special entertainment at the hands of the Baltimore members during our meeting there in 1870."

A general discussion followed, in which the resolution was unanimously endorsed. It passed without opposition.

A resolution was passed tendering the thanks of the association to the Reception Committee for their entertainment while here.

All the business being transacted, the convention adjourned, to meet again in the city of Baltimore, on the second Tuesday of September, 1870, at three o'clock in the afternoon.

A fine exhibition of drugs, chemicals, sundries, etc., was held at Chicago during the meeting of the Association, chiefly supported by American exhibitors. The following English goods were, however, prominent. (We quote from the *New York Druggists' Circular*.)

S. Maw and Co., of London, England, make a beautiful display. Among other articles is an elegant Spanish mahogany winged medicine chest; self-acting magnetic machine; vinaigrettes, smelling salts, fancy toilet boxes, bathing caps, sponge bags, chest protectors, knee caps, elastic stockings, telescope enemas, the very choicest hair and tooth brushes, speculums and bougies, elastic goods, water and air cushions, half a dozen elegant show-jars, coloured earthen ointment jars, Wedgewood funnels, glass graduates, feeding bottles, etc.

Waters and Ricksecker, New York, exhibited a cabinet of *Materia Medica*, made by Evans, Lescher, and Evans, of London, and which was presented to the Chicago College of Pharmacy by Waters and Ricksecker.

Veterinary Notes.

BY W. HUNTING, M.R.C.V.S.

FOOT AND MOUTH DISEASE.

THE prevalence of this disease leads me to think a few remarks on it may be useful.

Murrain, epizootic aptha, foot and mouth disease, by all of which terms this affection is known, is a contagious eruptive fever, seldom attacking the same animal a second time.

Like the cattle-plague and lung disease, it is imported into this country, spreading by contagion, and never arising spontaneously; but, unlike them, it is communicable to man and other animals. Horses and sheep have been attacked from eating food contaminated by an affected cow, and pigs and children have frequently suffered by the milk.

Although murrain is not now very fatal, yet it entails serious expense from loss of weight and condition, and, amongst dairy stock, of milk. The symptoms are pretty well marked. At first, we notice loss of appetite and general febrile symptoms; if at grass, separation from the rest of the herd. A closer examination shows an eruption of little bladders or vesicles on the lining membrane of the mouth, on the udder, and between the digits. The eruption on the mouth produces a profuse discharge of frothy saliva, and interferes with mastication, in some cases altogether arresting it. Should the eruption spread backward to the pharynx and gullet, swallowing is interfered with.

The eruption on the udder, if mild, merely renders milking difficult and painful, but it may be so severe as to cause inflammation of the gland. The eruption between the digits when severe, is perhaps the worst symptom in the disease; from vesicles we have pustules, and suppurations round the coronet, even to the extent of detaching the hoof. The pain

of this complication aggravates the fever, and sometimes leads to a fatal termination; luckily this virulent form of the disease is now uncommon.

Treatment.—These few remarks will show that treatment is required for the general fever, and locally to mouth, teats, and feet.

The fever and local symptoms are both due to a blood poison; our treatment, then, must be directed to excretory organs. An aperient is to be given as for an adult animal.

Magnes. Sulph. 16 oz.

Sulph. Sub. 2 "

Zingib. pulv. 1 "

Remember that in ruminants a considerable quantity of fluid is expedient with a purgative; the above in about four quarts of thin gruel. The mouth should be washed with an astringent gargle—a simple solution of alum is very good; the feet should be washed clean, and then dressed with a mild solution of Zinc Sulph.

The eruption on the teats requires little to be done; milking must be gentle, and if found to produce much pain, performed by inserting teat syphons. Some cases may require tonics after, and none can be better than Gentian ʒij, Ferri Sulph. ʒij, given in a pint of linseed tea once a-day. Hard food, as turnips, may be boiled, and bran-mashes, etc., given till the mouth resumes its normal condition. The treatment of disease has most interest directly for medical men and druggists, but we must all be interested more or less in its prevention. This applies especially to those diseases which are really foreign to the country, and capable of medical extinction.

The cattle plague was stamped out by active measures the enforcement of which for the time also stopped the ravages of the "lung" and foot and mouth disease. We have professedly since that time had an inspection of foreign stock, but only those palpably diseased were killed, the rest of the cargo being allowed to move inland and mix with our own herds. The Contagious Diseases (Animals) Act passed last session, if properly carried out, might have been of use; but in a number of counties the authorities have appointed as inspectors police constables.

The appointment of workhouse masters as inspectors of small-pox or cholera would be about as effective as policemen of cattle-plague and lung disease. Yet the one would never be dreamed of, and the other is in force.

INFLAMMATION OF THE UDDER.

Mammitis, or "Garget," is of frequent occurrence in the cow; it may result from external injury, exposure to cold, or irregular and bad milking. We have it, too, sometimes, as an aggravation of milk fever and the foot and mouth disease. The symptoms are at first purely local, but shortly accompanied by fever in greater or less degree, depending upon the severity of pain, etc. The secretion of milk is diminished and perverted, being watery, and containing curds; it then becomes yellowish from admixture of pus, and may be entirely arrested. The gland swells, feels hard and hot, is very painful, the veins running from it being much distended. These symptoms may terminate in resolution, but in some few bad cases end in abscess, or even mortification of a quarter of the udder. I may here say, that the udder consists of four quarters or lobes, quite distinct from one another; consequently milk can only be removed from each by its own respective teat. We notice, too, that this division usually confines any disease to one quarter. The general treatment consists in lessening the food and giving mild aperients and antacids. I generally use Potass. Bicarb. in two-drachm doses, twice a-day, till the acute symptoms have passed. Local treatment consists in the constant use of WARM fomen-

tation, and the support of the gland by a carefully arranged bandage, through which the teats must be allowed to protrude. The milk must be frequently but quietly drawn off. When the acute pain has passed off, resolution may be accelerated by gentle friction, and, still later, by a stimulating liniment or a mild iodine ointment. Should an abscess form, early incision must be resorted to; once being sure of the presence of matter, do not wait for it to "point."

Abstracts of Foreign Papers.

ON TINCTURA OPII.

IN the American *Journal of Pharmacy* we find the following process for the preparation of *Tinctura Opii*, recommended by Mr. J. B. MOORE:—Macerate two ounces and a half of powdered opium, in a covered vessel, with one pint of hot water, and with frequent stirring until the tincture cools; then transfer it to a stoppered bottle, and continue the maceration for twelve hours, with occasional agitation; then strain the infusion through muslin, with strong expression. Macerate the residuum with one pint of 85 per cent. alcohol in a stoppered bottle for twelve hours, shaking frequently; then strain and express. Mix the infusions, and upon the dregs carefully packed in a small cylindrical glass percolator, gradually pour the tincture, and when it has all passed from the surface, continue the percolation with diluted alcohol until two pints of tincture are obtained.

ON THE PRESERVATION OF EGGS.

The *Journal de Pharmacie et de Chimie* contains an account of some experiments by M. H. VIOLETTE, on the best method of preserving eggs, a subject of much importance to France. Many methods had been tried: continued immersion in lime-water or salt water; exclusion of air by water, sawdust, etc., and even varnishing had been tried but respectively condemned. The simplicity of the method adopted in many farms, namely, that of closing the pores of the shell with grease or oil had, however, attracted the attention of the author, who draws the following conclusions from a series of experiments on this method:—Vegetable oils, more especially linseed, simply rubbed on to the egg hinders any alteration for a sufficiently extensive period, and presents a very simple and efficacious method of preservation, eclipsing any methods hitherto recommended or practised.

FLUORINE IN THE BRAIN.

M. E. N. HORSFORD describes, in the *Annalen der Chemie und Pharmacie*, a method by which he has recognised the presence of fluorine in cerebral matter. He incinerated this matter with lime or potash, previously proved to be free from fluorine, and treated the residue with a mixture of sulphuric acid and silica, causing the products of this reaction to traverse a tube moistened with water. After the lapse of a certain time, the interior of this tube was found coated with a thin layer of silica formed by the action of the water on the fluoride of silicium produced in the reaction. The *Journal de Pharmacie et de Chimie* very properly draws attention to the fact that although the conclusions drawn by the foregoing author accorded with the results obtained by previous experimenters on the presence of fluorine in the organism, it might be possible to commit errors in the search for fluorine if the numerous precautions indicated by Nicklès are not rigidly enforced.

NITROPHENIC ACIDS.

MR. HIRSH points out, in the *Chicago Pharmacist*, the fact that the good fortune of producing carbolic acid perfectly pure, does not consist in the sought for acquisition of the

ne plus ultra disinfectant which its final purity promised, but rather in the discovery that its accompanying tribes, alcohols of the cresylic and xylic series, rejected so far as worthless, cumbersome appendages, possess superior antizymotic qualities, and the numerous good results ascribed to the use of carbolic acid were in reality due to the presence of the other alcohols mentioned, which even to-day may be found in the bulk of the carbolic acid in the market. In practice, the dark impure creosote was preferred to the light coloured, even before the above constituents of the same had been thoroughly studied. Experiments with binitrophenic acid showed that a solution of this acid in ten thousand parts of water produced, in blood serum, a coherent film of coagulum, while a similar solution of carbolic acid produced only turbidity. If the property to coagulate albumen is taken as the *modus operandi* of carbolic acid, the production of the same result by another substance should recommend the latter for the same purpose. Experiments testing the effect of nitrophenic acid on the lower classes of animal life exhibited its powerful action in a remarkable manner. Although the author's experiments were confined to the binitrophenic acid, he does not hesitate to assume the same superiority for the other nitro-compounds.

ADDRESS TO THE CHEMICAL SECTION OF THE BRITISH ASSOCIATION.

Exeter, August 19th, 1869.

By H. DEBUS, Ph.D., F.R.S., President of the Section.

I BELIEVE it has been the custom with many of my predecessors in this office to place before the members of the British Association a Report of the progress of Chemistry during the year preceding their election. In attempting to follow their example, I soon found that it would be impossible for me, without making too great a demand upon your time, to give even a bare outline of the more important chemical work done during the year. A science the report of whose yearly advances fills about 1,000 large octavo pages cannot by any powers of mine have its progress chronicled in an address of half an hour's duration. The best course open to me under such circumstances is to direct your attention to the ideas which at present guide chemists in their researches, to place in a clear light the objects they are striving to attain, and to indicate the direction of scientific thought of our time. To do this is by no means an easy task; for the more manifold and diversified the objects of a science become, the more numerous and extensive its relations with other branches of knowledge, the more difficult it becomes to draw a picture of its actual condition.

It is always an excellent recommendation of a theory or hypothesis when amongst the cultivators of the science to which it pertains very little difference of opinion exists as regards its admissibility and scientific value. This is in a high degree the case with regard to the atomic theory. The vast majority of chemists, I believe, accept this theory as the most suitable exponent of the fundamental truths of their science; and certainly if the quality of the tree may be judged by its fruit there is no other view which furnishes a clearer image to our minds of the chemical constitution of bodies, and at the same time conducts to the discovery of so many important facts and relations. According to Dalton's profound hypothesis, all bodies are supposed to be composed of atoms of infinitely small dimensions. But these atoms are supposed not to be single; two or more of them are held together by certain forces, and thus constitute what is

called a molecule. One atom of carbon, one atom of calcium, and three atoms of oxygen, joined together by the force called chemical affinity, constitute a molecule of carbonate of lime. Vast numbers of such molecules bound to each other by the force of cohesion form a visible piece of chalk. If a chemist wishes to examine a body, his first endeavour is to ascertain of what sort of atoms the body is formed. This is a mere matter of experiment. He next determines how many of such atoms are contained in each molecule of the body, and finally he ascertains how these atoms are arranged, or, more correctly, combined within the molecule; for it is quite clear that a substance like saltpetre, which contains one atom of nitrogen, one of potassium, and three of oxygen, may have these atoms arranged in very different manners and still have the same composition. We might assume the potassium and nitrogen in more intimate union, nearer to each other than they are to oxygen, or we might consider nitrogen and oxygen more closely packed together, and, so to speak, attached as a whole to the potassium; in both cases, saltpetre would have in each molecule the same number of atoms, and the weight of the molecule would be the same. The three determinations just mentioned are of fundamental importance to the chemist; not that such inquiries are the only ones which interest him, for we shall in the sequel notice others of almost equal importance.

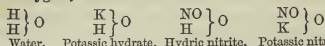
Nor must it be supposed that questions of this nature are of quite a modern date; for Leucippus, 500 B.C., appears to have sought to explain the nature of things by the assumption that they are formed by the union of small particles, which latter received the name of atoms from Epicurus. It is true the notion of atoms as conceived by the Grecian philosophers is not quite the same as ours, but their speculations contain our notions pretty much in the same way as the acorn contains the oak tree.

The determination of the quality of the atoms in a molecule, or the analysis of the latter, has not undergone many changes during the last few years, and the same may be said about the finding of the relative weight of a molecule, or the determination of the number of atoms which are contained in it. With regard to the latter point, however, it may be mentioned that Avogadro's hypothesis, according to which equal volumes of gaseous substances, measured at the same temperature and pressure, contain the same number of molecules, guides us chiefly in assigning to each molecule its relative weight and its number of atoms; this hypothesis has won more and more the confidence of chemists, and it is now admitted to hold good in nearly all well-examined cases.

Our views relative to the combinations of atoms in molecules, and our methods of ascertaining this arrangement, have, however, undergone great alterations and received great additions during the last ten or fifteen years. To a consideration of these changes I will now, for a short time, invite your attention. Since our modern views, however, originated in a great measure from the study of organic bodies, and since the majority of chemists now devote their time and labour thereto, I shall confine my remarks principally to the organic branch of the subject.

Eighteen years ago Professor Williamson read before the members of this Association a remarkable paper, which contained the germ of our modern chemical views, and was the cause of many important discoveries. He proposed to regard three large classes of bodies, acids, bases, and salts, from the same point of view, and to compare their chemical properties with those of one single elected substance. For this term of comparison he chose water. Now water is composed of three atoms, two of hydrogen and one of oxygen. Williamson showed that all oxygen acids, all

oxygen bases, and the salts resulting from a combination of the two can, like water, be considered to be composed of three parts or radicals, two of the radicals playing the part of the hydrogen atoms in water, and the third that of the atom of oxygen; thus:—



Water. Potassic hydrate. Hydric nitrite. Potassic nitrite.

Potassic hydrate is water which has one of its atoms of hydrogen replaced by an atom of potassium, hydric nitrite is water which has one atom of hydrogen replaced by nitric oxide, and potassic nitrite is water with one of its hydrogen atoms replaced by nitric oxide and the other by potassium. This speculation, as every chemist knows, is well supported by experiments; it embraces three large classes of bodies which till then had been considered as distinct. M. Gerhardt, in 1853, extended Williamson's views by distinguishing two other types of molecular structure, represented respectively by hydrogen and ammonia, and succeeded, by help of the radical theory, in arranging the majority of the then known substances under one or the other of the three types already mentioned.

Like every theory which is in harmony with experience, the above considerations led to results of unexpected importance; for it soon became apparent that the radicals which replace hydrogen in water are not all of the same chemical value. If we place, together the formulæ of hydric nitrite and carbonic acid



Hydric nitrite.

Carbonic acid.

we perceive at once that the atomic group NO has replaced one atom of hydrogen in one molecule of water, and carbonic oxide, CO, two atoms of hydrogen in one molecule of water. Nitric oxide (NO) is therefore said to be equivalent to one atom of hydrogen, and carbonic oxide (CO) equivalent to two atoms of hydrogen. The radical of phosphoric acid [PO] is found to be equivalent to three atoms of hydrogen. Professor Odling was one of the first to observe this difference in the equivalents of atoms and groups of atoms, or compound radicals as they are termed, a difference which he marks as shown in the following examples:—

Radicals.

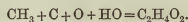
Equivalent to one atom of hydrogen.	Equivalent to two atoms of hydrogen.
Nitric oxide (NO) [']	Carbonic oxide [CO] [']
Methyl (CH ₃) [']	Methylene [CH ₂] [']
Ethyl (C ₂ H ₅) [']	Ethylene [C ₂ H ₄] [']

The notion of equivalence enabled Professor Kekulé to form most interesting speculations on the constitution of organic bodies, and to explain the relation between composition and equivalence of such radicals as methyl, CH₃, ethyl, C₂H₅, methylene, CH₂, ethylene, C₂H₄, and acetylene, C₂H₂.

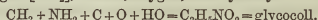
If from one molecule of marsh-gas, CH₄, one atom of hydrogen is abstracted, the residue, CH₃, called methyl, can combine with an atom of hydrogen again, and produce the original marsh-gas molecule. But methyl, instead of combining with an atom of hydrogen, can unite with an atom of chlorine, or an atom of bromine, that is to say, the place of the atom of hydrogen can be taken by an atom of chlorine or bromine. Methyl being thus equivalent to an atom of hydrogen, is said to be monovalent. If from a molecule of marsh-gas two atoms of hydrogen are removed, the residue, CH₂, called methylene, can again unite with two atoms of hydrogen, or instead of hydrogen, two atoms of chlorine or bromine, and form the compounds CH₂Cl₂, CH₂Br₂, respectively. Methylene, therefore, being equivalent to two atoms of hydrogen, is termed divalent.

The radical CH₃, left after the abstraction of three atoms of hydrogen from marsh-gas, is able to reproduce with three atoms of hydrogen one molecule of marsh-gas, or to combine with three atoms of chlorine, and form chloroform, CHCl₃. The residue, CH, is thus trivalent, or equivalent to three atoms of hydrogen. In the same manner carbon is found to be tetravalent or equivalent to four atoms of hydrogen; but carbon, when [CH], methylene, CH₂, methyl, CH₃, not only combine with hydrogen, chlorine, or other elements according to their equivalence, but also amongst themselves, and thus produce the so-called hydrocarbons, native as well as artificial. Methyl combines with methyl and produces dimethyl, or better known as ethylic hydride, CH₃ + CH₃ = C₂H₆; methylene combines with methylene and forms ethylene, CH₂ + CH₂ = C₂H₄. Methylene is divalent and methyl monovalent; therefore methylene combines with two equivalents of methyl and forms propylic hydride, C₃H₈, CH₃ + 2CH₃ = C₃H₈. Six equivalents of formen are supposed to be contained in benzol [C₆H₆], 6CH = C₆H₆.

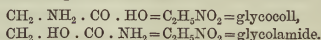
What has been said of marsh-gas also applies to ammonia and water. Ammonia, NH₃, minus one atom of hydrogen, forms the monovalent radical, NH₂, minus two atoms of hydrogen, the divalent radical, NH, and nitrogen itself is trivalent, that is to say, it can replace three atoms of hydrogen in compounds, or can combine with three atoms of hydrogen. Water minus one atom of hydrogen produces the monovalent radical hydroxyl, HO, and water without both atoms of hydrogen gives us divalent oxygen. These radicals, NH₂, NH, N, HO, and O, can combine with each other, and with methyl, methylene, formen, and carbon respectively, in different proportions. Thus methyl, methylene, and hydroxyl are contained in common alcohol. The union of methyl, carbon, oxygen, and hydroxyl gives acetic acid, C₂H₄O₂.



Glycocoll is considered as a combination of methylene, amidogen [NH₂], carbon, oxygen, and hydroxyl:

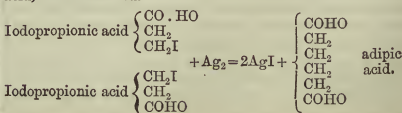


The radicals C, CH, CH₂, CH₃, HO, O, N, NH, NH₂, and CO are considered to form the proximate constituents of the most important organic compounds. It often happens that, from the union of the same radicals, two or more bodies of the same composition, but differing from one another in properties, result. Glycocoll, as well as glycolumide, contain the radicals methylene, hydroxyl, carbonic oxide, and amidogen, NH₂. In such cases the nature of the compound depends on the arrangement of the radicals, as may be seen by the following formulæ:—



Now the great problem with whose solutions scientific chemists are occupied is—To determine, first, what sort of radicals of the above nature are contained in a given organic body, and, second, how these radicals are grouped amongst each other.

There are several ways of solving this problem. The molecule may be built up by placing the radicals which are supposed to exist in it under suitable conditions in contact. Two molecules of iodopropionic acid placed together with metallic silver will lose their iodine, and the residues of the two molecules remain united. A new acid, called adipic acid, is thus formed.

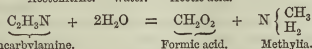
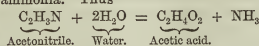


We know, therefore, the radicals of adipic acid, and their arrangement, if we possess the same knowledge with regard to iodopropionic acid.

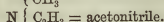
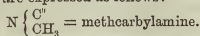
The above elegant synthesis has lately been performed by Professor Wislicenus, of Zurich. M. Berthelot has now succeeded in producing representatives of the principal classes of hydrocarbons from the elements of carbon and hydrogen, and Messrs. Bauer and Verson, of Vienna, have prepared from amylene, C_5H_{10} , a compound, $C_{10}H_{16}$, which appears to be identical with terebene, a body closely allied to turpentine.

Another way to determine the proximate constituents of molecules, is to take the little structures to pieces, and to form a judgment of their constitution from the radicals which thus can be extracted. This plan has been adopted by Mr. Chapman, and described by him at one of our former meetings.

The more common and more reliable method for the determination of the grouping of atoms in molecules is, however, the replacement of one or more of them by atoms of another kind, and the careful examination of the properties of the bodies thus formed. M. Gautier has recently obtained a new substance of the same composition as acetonitrile, which he calls methacrylamine. According to their formation, acetonitrile, as well as methacrylamine, can be considered as combinations of cyanogen and methyl = CH_3CN . The two bodies, however, do not possess the same properties; if they are heated with potassic hydrate and water, methacrylamine produces formic acid and methylia, whereas the same reagents cause acetonitrile to form acetic acid and ammonia. Thus



In the first case, the radical methyl remains after the decomposition in union with carbon, and in the second case in combination with nitrogen. Accordingly it is supposed that the same arrangement prevails in the undecomposed molecules, and with this supposition all the other properties of methacrylamine and acetonitrile agree. In symbols these relations are expressed as follows:—



This case of isomerism is most interesting, inasmuch as it furnishes a most instructive lesson on the grouping of atoms. The homologous bodies of methacrylamine in the ethyl and propyl series have also been obtained.

Isomerism, indeed, has received much attention during the last year, and a great many interesting discoveries have resulted; of these one more example may be mentioned. We know two compounds of the formula CN_2H_4O , the one is ammonic cyanate, and the other urea. Until recently, only one corresponding sulphur-compound, ammonic sulphocyanate, was known. Professor Reynolds has succeeded in obtaining the true sulphur-urea, a body isomeric to ammonic sulphocyanate.

Thus every year produces results which improve our conceptions of the atomic and molecular constitution of bodies; and as our knowledge improves new questions suggest themselves, and our power over the elements increases. It has already become possible to prepare in the laboratory bodies of a very complex character, such which a few years ago were only found in the bodies of animals or plants.

Alizarin, the beautiful compound of the madder root, has been obtained by artificial means in the course of the

year by Messrs. Liebermann and Gräbe. Results of such a nature render it highly probable that, at no distant period, it will be in our power to prepare artificially nearly all, if not all, the substances found in plants and animals. Here I must not be misunderstood. Organic structures, such as muscular fibre or the leaves of a tree, the science of chemistry is incapable of producing, but molecules like those found in a leaf or in the stem of a tree will no doubt one day be manufactured from their elements.

I must not conclude this address without reference to two or three papers of great importance.

Professor Bunsen, of Heidelberg, has published a paper on the washing of precipitates. Every one acquainted with practical chemistry knows how much time is often lost in waiting for a liquid to pass through a filter. Bunsen found the rate of filtration nearly proportional to the difference between the pressures on the upper and lower surfaces of the liquid. If, accordingly, the funnel be fixed air-tight by means of a perforated cork to the neck of a bottle, and the air exhausted in the bottle, the liquid will run faster through the filter in proportion to the diminution of the pressure in the bottle. Comparative experiments, some made according to the old, and others according to the new method, showed that the filtration, washing, and drying of a precipitate which took seven hours by the old plan could be performed by filtration into an exhausted bottle in thirteen minutes. But a saving of time is not the only advantage of the improved method of collecting and washing precipitates. A more perfect washing with less water than is required by the common way of proceeding is by no means the least recommendation of Bunsen's ingenious method.

A very important paper has been published by Professor Liebig on the improvement of the nourishing qualities of bread. Certain quantities of phosphates and other salts form necessary ingredients of wholesome food. Now, it is well known that most of these salts, which are naturally in wheat, remain with the husk. Liebig proposes to add salts, of a nature similar to those remaining in the husk, to the flour, and at the same time to substitute for the carbonic acid developed by fermentation, gas liberated from sodic carbonate. The bread prepared according to Liebig's recommendation is said to be of excellent quality, and to exceed in value bread made by the ordinary method.

Mr. Graham, of Her Majesty's Mint, has continued his researches on the absorption of hydrogen by palladium. Palladium appears to be able to absorb more than 900 times its volume of hydrogen, and to form a combination which consists of nearly equal equivalents of the two elements. Hydrogenium, as Mr. Graham calls the combined hydrogen, acts in this case like a metal, and thus the opinion held by some scientific men, that hydrogen constitutes the vapour of a metal, receives confirmation. The specific gravity of hydrogenium, as contained in the alloy, was found to be 1.95. These experiments are remarkable in more than one respect. The palladium, which absorbs and combines with the hydrogen, does not change its state of aggregation, but remains solid and expands as if it had been heated. The molecules of the palladium have consequently changed their relative positions and combined with hydrogen, whilst the continuity of the metal remained intact.

The last paper to which I have to draw your attention is an excellent one by Professor Tyndall, on a new method of decomposing gaseous substances by means of light. Tyndall's experiments bring us face to face with the motions of atoms in molecules, and the relation of these motions to chemical decomposition. They will no doubt, at some future time, furnish valuable materials to chemical dynamics.

METRIC MEASURES.

THANK Heaven and the Standards Commission, we may still buy our coals by the ton, our potatoes by the pound, and our tobacco by the ounce. The right of every free-born Briton to his barrel of beer, his punchen of rum, his quart of whiskey, his pint of sherry, his half-pint of porter, his quarten of gin, and his gill of vinegar, is still preserved to him through the efforts of such men as Sir Edward Sabine, the President of the Royal Society; the late Thomas Graham, the Master of the Mint; G. B. Airy, the Astronomer Royal; Professor W. H. Miller, of Cambridge, and three or four other gentlemen of similar eminence. Pharmacists may, therefore, rest easy, and need be under no apprehension that the old-fashioned and favourite pound, ounce, and grain—gallon, pint, and minim—are to be ousted from their ancient resting places in favour of the kilogramme, centigramme, litre, decilitre, or cubic centimetre. They are already aware, no doubt, that an Act was passed last session, graciously permitting them, in company with all other traders, to use the litre, metre, and kilogramme instead of the pint, yard, and pound; but possibly they have used the same exclamation as the sailor did who, when he saw written up in a church the solemn warning that a man may not marry his grandmother, remarked loudly to a shipmate "Who the deuce wants to!" The law says, "A pharmacist may use metric measures, he may dispense his *aqua dest.* either by the litre or the cubic centimetre, his *soda carb.* by the decigramme or gramme, and his *morphia hydrochlor.* by the centigramme or milligramme. No doubt this is an inestimable privilege in the eyes of metrolaters and worshippers of St. Decimus, but we very much fear that most of the pharmacists will cry out with the sailor, "Who the deuce wants to?"

The Standards Commission have just issued their second report on the question of the introduction of the metric system of weights and measures into the United Kingdom. It will be remembered that the Commission was first appointed in May, 1863, for inquiring into the condition of the official standards of length and weight, and as to the effects of introducing the metric system into this country—a subject which they could not well avoid, seeing that such an event would necessitate the addition of a series of metric standards to those at present in use. The report, although only reaching to 133 pages, is full of information of a most interesting character, and as it only costs 1s. 6d., I should strongly advise those of your readers who are interested in this important question to possess themselves of a copy.

Before going more fully into the matter, it may be as well to say at once that the whole tone of the report is decidedly unfavourable to the adoption of the metric system being made compulsory until the whole subject of weights and measures of this kingdom be brought before Parliament in one Bill.

The feeling in favour of decimalising our coinage, weights, and measures is, however, decidedly preponderant.

The difficulties in the way of introducing new coins, weights, and measures into common use appear to be almost insuperable, and were such a thing proposed, we fancy an immense outcry would be raised from one end of the kingdom to the other. The common people obstinately and strongly oppose all change in these directions. Those of your readers who have passed their sixth or seventh lustre, will remember with what disfavour the half-farthings were received in 1845, how steadily the small shopkeepers refused to take or pass them, and how soon they disappeared from circulation. This conservatism shows itself most strongly in our adherence to the use of the old guinea as a unit of

price, although the coin itself has long disappeared. The only step towards the decimalisation of our coinage has been received most coldly. The florin was introduced as a new coin, with a definite name, forming part of a decimal series; but instead of being adopted according to the intention of the Government as the tenth part of a sovereign, it was speedily christened the two-shilling piece, and nobody ever looks upon it, or ever will look upon it as being anything else but a double shilling. This failure augurs ill for the success of future efforts.

Our neighbours on the other side of the channel, although much more submissive to petty enactments than we are, are just as obstinate in cases where they can preserve their liberty without penalties. *Ligue* (league), *choppe* (the old pint), *livre* (the old pound), and *gros* (the old drachm) are continually used by even educated people. Ask a passer-by in Paris the distance to any place, he will tell you it is so many leagues, and if you ask him how many kilometres it is, he will have to make a mental calculation before answering you. Go into a grocer's and ask the price of candles, and the answer you will get will most probably be "*Seize sous la livre*"—sixteen sous the pound, instead of eighty centimes the half kilogramme, as the shopman ought to say. The word "centime" is rarely used by ordinary people. Ask your *concierge* how much a letter to England costs, and he will tell you "eight sous." Put the same question to the postmistress, and she, being in government employ, will most likely startle you by replying "Forty, monsieur," leaving you in a state of dread for a moment lest she means forty sous; but supposing she happens to be out of stamps she marks your letter in red ink with a large "4"—meaning thereby neither 4 sous nor 4 centimes, but 4 *décimes*, [a true decimal value, which has disappeared everywhere but in the post-office; and yet sous were practically abolished in 1790. The smaller denominations of the decimal system are also hardly ever used by the common people. A London cabman will call for his half-quartern of gin and his ounce of shag, but a Paris *cocher* would never dream of asking for a decilitre of brandy, or a decigramme of *caporal*, and yet these words are much more French than they are English. The Paris cabmen, just as well as his fare, buys his three sous worth of tobacco or snuff as unconcernedly as if no such designations as decigramme or centigramme had ever existed. If you ask him to take a drink he renounces the litre and all its derivatives, and swallow his *canon* of *petit bleu* or his *petit verre* of *trois-six* with the greatest gusto and gratitude, while his London brother would receive his pint of 'arf-an'-'arf, or his 'arf quartern of old Tom with "thank ye, sir," and a rough bow.

The reasons for all this unwillingness to use the metric system on the part of the French people appear to be two: first, the hatred to alteration that appears to be inherent in the lower classes of all countries, and, secondly, that decimal weights and measures will not halve easily. The consequence is, that they are as ignored as much as if they had never existed, and small quantities of commodities are purchased, not by weight or measure, but by their supposed value. Taking tobacco has a familiar instance, the rich man in France buys his Latakia by the kilogramme or decigramme, but the poor man is obliged to be content with three sous worth of *caporal*, which is just about as much as the shopkeeper chooses to give him, the amount varying considerably in different localities. There is very little doubt that this practical ignoring of weights and measures must act directly against the interests of the poor customers. In our own case a workman who cannot afford to buy a pound or half a pound of shag is able to purchase it by the quarter ounce, and runs but little danger of being cheated as he

generally sees it weighed before his own eyes. We have also our commodities that are sold by price instead of by weight or measure, for instance, hair-oil and violet powder, the pennyworths of which vary singularly in different places.

Seeing, therefore, the reluctance with which the decimal system is likely to be received by the people of this country, would it not be well for pharmacists to pause before adopting metric weights and measures, or rather, I should say, metric weights, for the Paris Codex directs that all liquids, as well as solids, shall be weighed. I know that certain pharmacists in high places are most anxious for the metric system to be introduced. At the head of them stands my esteemed friend Professor Attfield, who is an enthusiastic metrolater, but his opinions are rather those of a man of science than of a struggling East-end pharmacist. Let me not be misunderstood. In the laboratory of the chemical philosopher the decimal system is the only one that can be adopted either for weights, measures, pressures, or temperatures, the metre and litre of course being the standards adopted so as to bring our results into concordance with those of foreign chemists; but for the dispensing counter I have every possible belief that great inconvenience, nay, great danger, to the public would result if metric weights were to be adopted. It must also be understood that I speak more as one of the public than as a practical dispenser, for no matter what my theoretical knowledge of dispensing may be, my practice of that art has been but small, at any rate, "for sale or profit."

It seems to me, therefore, that what we want most is rather a reform in our present system than such a constitutional revolution as a change in our standards. It struck me on the appearance of the first edition of the Pharmacopoeia that it was the greatest possible mistake to abolish the troy ounce without also abolishing the troy grain. Who ever uses the grain in relation to the avoirdupois ounce? Why not have abolished the troy grain entirely, and substituted for it a grain weighing the 480th part of an avoirdupois ounce. We should then have had an ounce divisible by two five times, and a pound divisible by two nine times, without the use of fractions, whereas the half-kilogramme which is a pound, let us say, for the sake of argument, can only be halved five times, leaving a number with five figures in it to work with. Let us compare the capability of the two systems for being halved.

1,000,000 mgrms. ...	...	...	2 lbs.
500,000 — ...	...	...	1 lb.
250,000 — ...	...	...	$\frac{1}{2}$ —
125,000 — ...	...	...	$\frac{1}{4}$ —
62,500 — ...	...	...	2 oz.
31,250 — ...	...	...	1 —
15,625 — ...	...	...	$\frac{1}{2}$ —
			$\frac{1}{4}$ —
			60 grs.
			30 —
			15 —

It would of course be much more convenient if we divided the ounce avoirdupois into 640 grains, for we should then be able to halve four times more without fractions.

You may ask why I lay so much stress upon a binary division. My answer is, that it is the one that everybody instinctively adopts. The workman halves down to the 32nd of an inch and to the quarter of an ounce; the bookseller begins at the folio and works downward to the 32mo; the seamstress goes from the yard to the half-quarter as she calls it, and which is generally the length of her pretty finger; the cabman begins at the gallon and ends at the half-quarter, and so on almost without exception. In fact, I have always been of opinion that there is something wrong about

our finger and toes, and I cannot help thinking that our first parents must have had only eight fingers and toes, and that their tails were transformed into thumbs and great toes after they ate that terrible apple, the effects of which have been so inconvenient to their descendants.

Again, I would ask not to be misunderstood. In the laboratory I am a thorough-going metrolater, and a pious worshipper of St. Decimus, but like many people who go to church very regularly I leave all my religion at the door as I come out. I can hardly tell you the thrill of horror that came over me when I saw the other day a set of grain weights and ounce measures in the laboratory of a distinguished analyst. I was almost as horrified as if I had seen my baker weighing my bread by the kilogramme, or my milkman measuring out my *lac dilutum* by the litre. For the laboratory let us have grammes and metres, beakers and capsules, but for everyday life, for pity's sake, let us stick to our pints, pounds, and feet, our tumblers and mugs, our cups and saucers.

I know, Mr. Editor, that my views are at variance with yours on this subject, but I am most anxious to raise a discussion in your columns, so that we may know the opinions of at least some members of the trade on the matter. For fear, therefore, that you should in any way be identified with my heretical notions I sign my name to this communication, in order that I alone may be responsible for the sentiments contained in it. Allow me to thank you for promising to insert a letter so antagonistic to your own views, and to express a hope that your fairness and justice will be rewarded by a valuable discussion on this important subject.

In conclusion, will you allow me to ask Professor Attfield, or some other scholarly metrolologist, to settle the pronunciation of kilometre, hectometre, decametre, decimeter, centimeter, and millimeter? At present they are pronounced with a double accent, one on the first syllable, and one on the third—*kil'-om'-ter*, *hec'-tom'-ter*, *de'-cam'-ter*, &c I would suggest that in future they be pronounced with the accent on the antepenultimate in analogy with such precedents as barometer, hexameter, perimetre, etc. The accentuation I propose is, to my ear at least, much more euphonious than the one I condemn.

CHARLES W. QUIN.



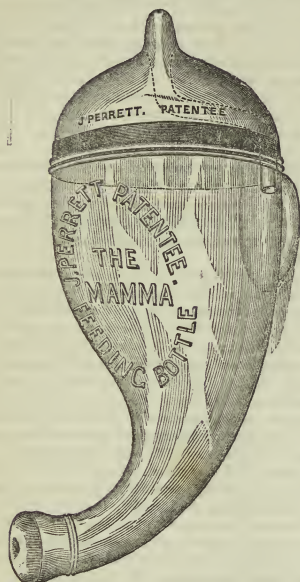
STYPTIC PAPER.

MESSRS. ARMBRECHT, NELSON, & Co., the homoeopathic chemists, of Ryder-street, St. James's, are selling to the trade shilling cases of court plaster, which besides the usual vary-coloured strips of sticking plaster, contains a useful addition in the form of several small sheets of "styptic paper," which unskilful manipulators of the razor especially will know how to value. By the way, may we take this opportunity of asking how it is that manufacturers, and some retail firms as well, will persist in spelling plaster—plaster?

THE "MAMMA" FEEDING BOTTLE.

A NOTICE of the above has appeared in the *Lancet*, in which the writer describes this last novelty in baby's sundries as the "best feeding bottle" yet introduced. There are certainly some important advantages presented by this bottle which do not belong to any other, but we cannot help thinking that in some respects those now in use are somewhat more convenient. The inventor of the "Mamma" has evi-

dently studied, and in this has succeeded, to arrive as near to natural action as it is possible to come by mechanical contrivances. The end of the bottle is an india-rubber shield moulded to the shape of the breast, and thus offering the best



possible substitute for the wet nurse. The stopper of the bottle is supplied with an excellent valve identical in its action to the valve of the human heart, and by this an easy and regular flow of the food is ensured, and the fluid is also prevented from escaping. The bottle can be readily cleaned, and the inventor claims for it a further advantage with regard to its safety, as he informs us that there have been cases in which the nipple has come off and choked the infant, while here a child must obviously swallow the whole bottle if possessed with suicidal propensities.

ETOILE D'HONNEUR.

SIDNEY BROWN, whose "watch" perfumes had a remarkable "run" a few seasons ago, has brought out another novelty under the striking title given above. The bottle is in the shape popularly attributed to a star, and with a showy label and little blue riband, an attractive appearance is presented.

BRAGG'S CARBONATED IRON TONIC BISCUITS.

MR. BRAGG'S Charcoal Biscuits, and the general esteem and reputation which these have obtained with the public, have done more to prove the value of charcoal as a medicine than any number of treatises could have accomplished. The same maker also supplies in the biscuit form the established favourite tonic, carbonate of iron, and in no more palatable or efficacious manner could this remedy be presented. As far as we know, these iron biscuits are scarcely known to the trade, and Mr. Bragg himself seems so absorbed in charcoal as to have but little time to push forward his other equally

valuable preparation. Everybody has want or fancied need of a tonic at times, and, if better known, Bragg's Tonic Biscuits would become great favourites with the public.

PAPER BLUE.

MESSES. FORBES, BORN, & Co., of South-place, Finsbury, a firm we had the pleasure of introducing to our readers two months ago, have sent us a sample of a Hungarian chemist's manufacture of Blue Paper, intended for the use of laundresses in the same manner as stone and liquid blue are now employed. We are told that in the form of paper a sufficient colour is produced more economically, and which leaves no sediment.

RIMMEL'S ALMANAC.

A DELIGHTFULLY-SCENTED sachet, a rich little valentine, and a work of art combined, Rimmel's Almanac has now become an institution of the realm. This year the subjects selected for coloured illustrations are fancy portraits of our best poets heroines. Thus we have Juliet, Lalla Rookh, Evangeline, and five others, and a descriptive verse with each. Mr. Rimmel's goods always sell freely, and this will be no exception.



Exercises in Practical Chemistry. By A. G. VERNON HARCOURT, M.A., F.R.S., Sec. C.S., Senior Student of Christ Church and Lee's Reader in Chemistry, and H. G. MADAN, M.A., F.C.S., Fellow of Queen's College, Oxford. Series I. *Qualitative Exercises.* Clarendon Press Series. Crown 8vo, pp. xv.—335. With 65 Illustrations. Price 7s. 6d. London: Macmillan and Co.

"LONGUM iter est per precepta, breve et efficax per exempla." This aphorism, from Seneca's sixth Epistle, is appropriately placed on the title-page of a work designed to furnish a systematic course of study to those who are beginning to learn chemistry practically. In all those good qualities which may be collectively expressed by the word "thoroughness," the book produced by Messrs. Harcourt and Madan will bear comparison with any of the excellent scientific treatises that have issued from the Clarendon Press. The literary execution of this work justifies Matthew Arnold's inference that "sweetness" and "light" are the attributes of culture, and proves that the art of writing pure English is one of the arts which the Oxford chemists have mastered. They recommend constant practice in writing out accounts of work done, as a means of gaining accuracy of thought, clearness of expression, and insight into analytical methods. We point to their own descriptions of operations and apparatus as excellent models for such records. By studying the construction of their sentences, the student will soon find that the best way of acquiring a good style is the very way which Seneca declares to be both short and effectual. Scholarly writing, however, is not the first thing to be desired in a book on Practical Chemistry: probably, it is the last thing that Messrs. Harcourt and Madan would care to be praised for. Let us, therefore, simply consider the work as a guide to chemical manipulation and qualitative analysis.

The course of study proposed by the authors commences with a series of exercises upon the preparation and properties of some of the most familiar substances, in which precise directions are given as to the apparatus and materials to be used, and as to the manner in which each experiment is to be made. In the earlier exercises, especially, the

directions given extend to minute details; the aim of the authors being to provide, as far as possible, all the guidance that a beginner working by himself, or with only occasional supervision, may require. The attempt has been made to arrange each exercise, so as to provide the student with continuous occupation, and to economise his time by giving two or three operations which can be carried on simultaneously, and to which he should direct his attention in turn. The analytical course given in this volume is that required for the analysis of a single salt, and is based upon the arrangement of Fresenius. A list of apparatus is given at the outset to show what is desirable that the student should have for the performance of the exercises. Those, however, who have not access to a chemical laboratory, and who are unwilling to incur the expense of providing themselves with a complete set of apparatus from a chemical dealer, will find in the Appendix a number of suggestions for the construction of pieces of apparatus which can be made cheaply. The illustrations in the text are quite equal to those which appear in the best scientific works published in France. Most of them have been drawn directly on the wood from photographs taken by one of the authors from apparatus actually used. The following [abstract of the Table of Contents will perhaps give a more distinct idea of the scope of the work than our brief description:—

First we have a list of apparatus, with ample descriptions and measurements, and seventeen woodcuts. Next we have a list of substances required for the course of practical work. PART I. of this course is devoted to *Experiments on the Preparation and Properties of Substances*, and is divided into the following sections: (I.) Preliminary Exercises—Fusion and Granulation; Glass-working; Solution, Evaporation, and Crystallisation; Solution; Precipitation and Filtration; Distillation; Use of the Pneumatic Trough. (II.) Preparation and Examination of Gases. (III.) Preparation of Reagents used in the Laboratory and of Normal Solutions of Reagents. (IV.) Experiments with the Mouth Blowpipe. (V.) Examination of the Properties of the Principal Radicles and their Salts.

Part II. is devoted to the *Qualitative Analysis of Single Salts*, and comprises six sections, viz., (I.) Explanation of the Analytical Course; (II.) Preliminary Examination of the Substance; (III.) Examination of the Solution of a Single Salt for a Metal; (IV.) Examination of the Solution of a Single Salt for a Non-metallic Radicle; (V.) Examination of an Insoluble Substance; (VI.) Example of the Analysis of a Single Salt. The Appendix includes suggestions for the Construction of Apparatus; Directions for the Recovery of Gold, Silver, and Platinum from Residues; a Table of the Solubility of Salts; Tables of Weights and Measures; Thermometric Scales, and, lastly, an admirable essay on Chemical Symbols by Mr. Vernon Harcourt.

The plan of the book appears to us to be admirable, and the directions given for performing the various operations involved in the course are wonderfully precise and clear. The following memoranda by Mr. Madan are given as an introduction to the work, and are reprinted here as suggestive notes for young pharmacists:—

"1. Be orderly and neat in manipulation. Cleanliness stands at the head of the chemist's scale of virtues. All messes must be cleared away with the zeal of a sanitary inspector. Never go to work, or continue to work, with the table covered with a litter of bottles, flasks, basins, and test-tubes; but replace each bottle on the shelf as soon as you have done with it, and have a basin at hand in which to put dirty test-tubes, etc. Always wash your test-tubes twice: once, before they are put away; and again, with distilled water, immediately before they are used. Possibly more puzzling reactions occur from the use of dirty test-tubes than from any other cause.

"2. Do not begin work in a hurry. What is expended in time is very often gained in power, in grasp of a subject. Yet, on the other hand, learn to be economical of time. Several filtrations and evaporations, for instance, may be going on at once. The chemist may sometimes, in spite of the proverb, do more than one thing at a time, by allowing things to do themselves.

"3. Be economical of materials. In analysing a substance, do not (without the strongest reasons) use up at once the whole quantity at your disposal. Reserve at least one-fourth of it in a corked tube or covered watch-glass, in case unforeseen accidents should occur, and the other portion should be lost. In making a gas, the residue left in the generating vessel will often be of use, at any rate, interesting as a specimen. It should not, as a rule, be thrown away, but purified by recrystallisation or otherwise.

"4. Never begin an experiment until you have looked over all the preparations for it, to make sure that you have everything that is necessary within reach. You will not then have the mortification of seeing the half-performed experiment fail for want of some requisite which cannot be procured at the moment.

"5. Never add one chemical substance to another without considering for what purpose you add it, and what various effects may be produced.

"6. Do not think merely of what will do, but what is best, of the means at your disposal.

"7. Be exact and methodical. Let nothing pass unnoticed, although you may not see its significance at the moment. Make written notes of everything that you do, analyses of lectures, sketches of apparatus. Whatever is worth doing is worth recording.

"8. Do not attempt to devise a modification of an experiment until you have tried it in exact accordance with the directions given. Then, and then only, if you fail, you will find it possible to blame the book and not yourself.

"9. Do not expose yourself needlessly to vapours which you know to be injurious—e.g., chlorine, hydrogen sulphide, hydrogen arsenide. Remember that the bad effects may not be perceptible immediately.

"10. Finally, do not look upon chemistry as a mere amusement, as a means of getting up a few explosions, creating a few unsavoury smells, producing a few striking changes of colour. Chemistry is worthy of better treatment; it is no longer a 'black art,' but a refined science, and should be thoughtfully and reverently studied.

"Nor, again, give up hopes of making discoveries in the science because the land appears to be already highly farmed, and you have not all the refined apparatus which the optician and the operative chemist can supply. Records of close and accurate observations of some of the (apparently) simplest phenomena of chemistry are much needed; and such it is in the power of every student to contribute."

Chemistry: General, Medical, and Pharmaceutical, including the Chemistry of the British Pharmacopoeia. By JOHN ATTFIELD, Ph.D., F.C.S., Professor of Practical Chemistry to the Pharmaceutical Society of Great Britain, etc. Post 8vo., pp. viii.—624, with two engraved plates, price 12s. 6d. London: Van Voorst.

PROFESSOR ATTFIELD'S "Introduction to Pharmaceutical Chemistry" has developed into a handsome volume of nearly 650 pages, and is now a complete text-book of chemistry, adapted for use as a reading-book, a lecture-companion, and a laboratory-guide. The introduction of new matter has not destroyed the original character of the work as a treatise on Pharmaceutical and Medical Chemistry, but has simply extended the foundations of these special departments of the science. In the appendix we detect many important additions and alterations. Eight pages of small type are devoted to a Table of Official Tests for Impurities in Preparations of the British Pharmacopoeia, which sets before us all the impurities that should be sought for in our preparations, and the tests for their detection. In the Acid and Alkali Tables, columns of figures have been added to indicate the percentage of true acid and acidulous radicle, or alkaline hydrate and metal: Thus, from the Sulphuric Acid Table we

learn that a solution of specific gravity 1.5760 corresponds to 68 per cent. of H_2SO_4 (the true acid) to 66.54 per cent. of SO_3 (the acidulous radicle), and to 55.45 per cent. of SO_2 (or sulphuric anhydride). Again, from the Caustic Potash Table we learn that a solution of specific gravity 1.63 corresponds to 61.004, KHO , to 51.2, K_2O , and to 42.485 K . But perhaps the most important addition to the appendix is a cleverly-devised Saturation Table, which shows at once the equivalent weights of the principal acids and alkalies employed in medicine. We have not had the book before us long enough to give an adequate account of its contents, but even a cursory examination of its pages enables us to congratulate Professor Atfield on the satisfactory result of his industry.

The author's preface explains the aim and scope of the work, and we gladly reprint it here:—

"This Manual is intended as a systematic exponent of the general principles of chemistry. It is written for students of medicine and pharmacy, and will be found equally useful as a reading-book for gentlemen having no opportunities of attending lectures or performing experiments, and as a hand-book for college pupils.

"From text-books having a similar object it differs in three particulars:—First, in the exclusion of matter relating to compounds which at present are only of interest to the scientific chemist; secondly, in containing the chemistry of every substance recognised officially, or in general practice, as a remedial agent; thirdly, in the paragraphs being so cast that the volume may be used as a guide in studying the science experimentally.

"Practical toxicology, the chemical and microscopical characters of morbid urine, urinary sediments and calculi, and tables to aid in the detection of impurities in medicinal preparations are included. Appropriate questions follow each section. The index contains upwards of five thousand references.

"In this Second Edition the author is again indebted to his friends Joseph Ince, F.L.S., and Henry B. Brady, F.L.S.—to the former for much assistance and many kind suggestions during the revision of the proof-sheets; to the latter for the excellent drawings from which the Frontispiece-plates have been engraved."

A SINGULAR case of experimental poisoning has just been discovered at Rossall College, North Lancashire. A youth named Hogan, the son of a Dublin town councillor, having conceived a dislike to one of his masters, named Sleip, who had been somewhat strict with him, placed a quantity of arsenic in a basin of sugar. He was observed to put something in the sugar basin by a monitor named Thorpe, at breakfast time. Luckily, Mr. Sleip was called away, and did not partake of anything for some time after the usual hour. Thorpe having been questioned by Hogan immediately after the meal as whether Mr. Sleip was ill, he remembered the action of Hogan with regard to the sugar basin, which was still on the breakfast table and luckily untouched. The basin and contents were immediately taken to Dr. Williams, the medical attendant at the college, who, having examined the contents, found arsenic sufficient to poison nine or ten persons in it. Hogan, on being questioned, stated that he was only trying an experiment out of curiosity, and that he considered Mr. Sleip the likeliest person to operate upon. He admitted that he had more arsenic, which he had brought with him after his midsummer holidays, and that it was secreted in a chimney. The place was searched, and a bottle containing enough to poison the whole college and neighbourhood was found. Hogan has been conveyed home to Dublin by his father.

Corner for Students.

The chemical formulae employed in this section are based upon the new system of atomic weights, unless the use of the older system is specially indicated. In the *British Pharmacopoeia* the symbols corresponding to those adopted here are printed in heavy Clarendon type. The chemical nomenclature generally used in this Corner for Students agrees with that adopted in the new edition of *Fownes's Manual of Chemistry*, which is recommended as a text-book.

QUESTIONS.

I. AMMONIA.—The ammonia produced by the decomposition of 1 gramme of ammonium chloride is collected in an eudiometer, and submitted to a current of electric sparks, until the volume ceases to increase. 300 cubic centimetres of oxygen are then added and the gaseous mixture is exploded. What is the volume of the residual gas (dry) in cubic centimetres, the barometer standing at 745 mm., and the thermometer at 11°C ?

II. GAS VOLUME.—The following observations were made in measuring a gas over mercury:—

Volume of the gas...	3.04 litres.
Height of the column of mercury in the gas vessel above that in the trough	87.0 mm.
Pressure	751.0 mm.
Temperature	20°C .

What is the volume of the gas at the standard temperature and pressure?

III. COPPER ORE.—Fifteen grains of copper ore are submitted to analysis; after treating the copper in the state of nitrate with an excess of potassium iodide, 580 grain measures of the volumetric solution of sodium hyposulphite (P.B.) are required to remove the free iodine. What is the percentage of copper in the ore?

IV. EMPIRICAL FORMULA.—Required the empirical formula, and name of a substance, 100 parts of which contain 76.59 of carbon, 6.38 of hydrogen, and 17.03 of oxygen.

V. VINEGAR.—If 100 pounds of cane sugar (Saccharum purificatum, B.P.) are converted into acetic acid without loss, how many gallons of vinegar having a specific gravity of 1.017 should the acid produce, supposing the vinegar to contain 4.6 per cent. of acetic acid, $\text{C}_2\text{H}_4\text{O}_2$?

VI. MUCOUS FERMENTATION.—What is the nature of the decomposition which takes place when cane sugar undergoes mucous fermentation?

VII. SUGAR OF MILK.—Explain by means of a symbolic equation, the alteration which takes place in the sugar of milk when it turns sour by exposure to the air.

VIII. BENZOIC ACID.—Express symbolically the reactions involved in the preparation of benzoic acid by the action of benzoyl chloride or sodium benzoate, and by the action of phosphorus pentachloride on the same compound.

IX. ORGANIC ACID.—An organic acid contains 68.85 per cent. of carbon, 4.92 per cent. of hydrogen, and 26.23 per cent. of oxygen. What is its name? Express symbolically the reaction which takes place when it is boiled with nitric acid.

X. OXYGEN.—If the value of mercuric oxide is three shillings per pound, and that of potassium chlorate one shilling per pound, what would be the cost in shillings of the quantity of each of these substances required to produce 100 litres of oxygen at the standard temperature and pressure (1 pound = 453.59 grammes, 16 grammes of oxygen = 11.19 litres).

ANSWERS.

I. MAGNESIUM SULPHATE, B.P. —This question was incorrectly given in our September number: baric sulphate should have been baric chloride. As one molecule of baric chloride decomposes one molecule of magnesium sulphate, thus—

$\text{MgSO}_4 \cdot 7\text{H}_2\text{O} + \text{BaCl}_2 \cdot 2\text{H}_2\text{O} = \text{MgCl}_2 + \text{BaSO}_4 + 9\text{H}_2\text{O}$, and as the molecular weight of $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ is 246, and that of $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$ is 244, the weight of the latter salt required for the decomposition of 100 grains, the former is found by the following proportion—

$$246 : 100 = 244 : x. \quad x = 99.187.$$

II. CHLORINE.—Since the molecular weight of sodic chloride is 58.5, and this weight in grammes contains 35.5 grammes, or 11.19 litres, of chlorine at the standard

temperature and pressure, the volume of chlorine in 100 grammes of sodic chloride is found by the following proportion—

$$58.5 : 100 = 11.19 : x \therefore x = 19.1282.$$

To correct this volume for the given temperature of 12° C., we have the following proportion—

$$273 : 273 + 12 = 19.1282 : x \therefore x = 19.9683.$$

To find what this volume would be at the given pressure, 755 mm., we have the proportion—

$$755 : 760 = 19.9683 : x \therefore x = 20.101.$$

III. SULPHURETTED HYDROGEN.—When this gas in small quantity is passed through a solution of mercuric chloride, a white precipitate is formed; a larger quantity causes the precipitate to turn yellow, and an excess of the gas produces a black precipitate of mercuric sulphide. The white precipitate consists of mercuric sulphide, with the undecomposed salt, thus—

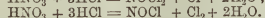
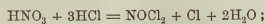


The following equation represents the total decomposition of the mercuric chloride, produced by an excess of hydrogen monosulphide—



IV. $\text{C}_3\text{H}_5(\text{NO}_2)_3\text{O}_2$.—This formula represents nitro-glycerin or trinitro-glycerin. It may be prepared by adding dried glycerin, in small quantities at a time, to a mixture of strong nitric and sulphuric acids. The mixture must be kept cold during the operation, and should be agitated after each addition of glycerin. As soon as oily drops begin to form on the surface of the mixture it is poured into cold water; the nitro-glycerin separates as a dense oily liquid. It may be purified by dissolving it in the smallest possible quantity of ether, washing the solution till all free acid is removed, and then expelling the ether by evaporation over a water bath.

V. AQUA REGIA.—The powerful solvent properties of this substance are attributable to the free chlorine which it contains. Its presence is due to the mutual decompositions which take place between nitric and hydrochloric acids. Thus,

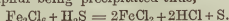


VI. OZONE.—A strip of paper moistened with a mixture of starch and potassium iodide, does not form a trustworthy test for ozone in the atmosphere, because certain oxides of nitrogen, which are likely to be present in the air in minute quantities, possess the property of decomposing potassium iodide, thus affecting the test paper in the same manner as ozone does.

VII. HYDROGEN.—Twenty litres of hydrogen at the standard temperature and pressure produce, when burned in the air, 16.036 grammes of water. 22.38 litres of hydrogen at the standard temperature and pressure weigh 2 grammes, and when burned in air combine with 11.19 litres, or 16 grammes of oxygen, producing 18 grammes of water. Therefore the weight of water produced by the combustion of 20 litres of hydrogen is found by the following proportion—

$$22.38 : 20 = 18 : x \therefore x = 16.086.$$

VIII. FERRUGINOUS CLAY.—The reduction of the ferric salt to a ferrous salt may be effected by passing hydrogen monosulphide through the dilute hydrochloric acid solution. An excess of the gas converts the ferric chloride into ferrous chloride, sulphur being precipitated thus,



The excess of hydrogen monosulphide should be expelled by boiling the solution before estimating the iron.

IX. DIFFUSIVE POWER OF GASES.—The relation which exists between the diffusive power of a gas and its specific gravity may be expressed by saying, that the diffusive power varies inversely as the square root of the density of the gas.

X. SULPHUR.—The quantity of sulphur in a sample of coal may be determined as follows—A few pieces of potassium hydrate are fused in a silver capsule with about one-eighth their weight of potassium nitrate; after cooling, the coal in fine powder is added, and the whole heated till white. The sulphuric acid thus produced is determined by dissolving the contents of the capsule in water acidulated with hydrochloric acid, and precipitating it as barium sulphate. The

quantity of sulphur present is calculated from the sulphuric acid thus found, less the sulphuric acid in the ash of an equal weight of coal, which should be separately determined.

PRIZES.

The First Prize for solutions of Problems printed in our September number has been awarded to

J. A. KENDALL, 1, Ridley-street, Blyth, the student who carried off the First Prize in May, the second in June, and an extra Prize in January.

The second Prize has been awarded to JAMES SELKIRK ("Edina"), at Messrs. Raimes, Blanshards, and Co., Edinburgh.

The solutions furnished by this student are with two slight exceptions highly creditable.

J. D. D. Thomas, the next in order of merit, has sent us carefully-prepared solutions which deserve mention.

Marks awarded for Answers.

	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	X.	E. Total.	
J. A. Kendall (1st pr.)	5	7	4	6	5	6	7	5	3	6	7	61
J. Edina (2nd)	..	3	8	4	6	5	6	7	5	3	7	60
J. D. D. Thomas	..	5	7	3	5	6	6	7	5	3	6	63
A. Fraser	..	5	8	4	5	6	7	3	3	5	6	57
W. H. Waddell	..	5	8	3	6	5	6	5	5	3	5	67
J. W. Evans	..	5	7	3	5	5	6	7	6	3	6	57
J. Paulin	..	5	8	3	5	4	7	6	3	3	7	54
J. J.	..	5	8	4	5	6	7	3	3	5	6	57
J. G. A.	..	5	8	4	3	5	6	4	6	3	5	62
J. W.	..	5	8	4	4	3	5	5	5	3	7	51
J. C. Thresh	..	5	7	4	6	5	5	2	3	5	7	61
A. P. S.	..	5	8	3	5	6	5	—	3	4	7	50
H. Halgood	..	5	7	3	6	5	4	—	5	3	6	49
T. Wilson	..	5	7	3	6	5	5	3	1	3	5	48
J. S. Ward	..	5	7	3	6	5	6	3	0	3	5	48
T. T.	..	4	3	4	5	5	6	7	6	3	6	43
N. Coaker	..	—	4	3	6	5	6	5	4	3	4	47
D. Udall	..	0	5	4	6	5	6	4	1	3	5	46
J. Kemp	..	5	2	3	5	5	6	7	5	3	0	42
C. Harvey	..	5	2	4	5	5	5	5	5	3	5	41
W. Greig	..	0	4	3	4	5	0	7	6	3	2	41
Try Again	..	5	4	3	5	5	5	4	1	3	3	37
H. J. Jackson	..	0	6	3	5	5	5	0	—	3	3	36
A. J. Smith	..	2	3	4	3	5	5	5	0	3	3	35
W. J. Smith	..	0	3	3	5	5	0	4	2	2	5	33
A. Z.	..	—	5	3	5	5	0	0	3	4	3	28
Cupis Discard	..	0	3	3	4	5	6	3	0	0	0	24
J. H. Watson	..	0	4	3	3	5	0	0	0	0	1	18
Contentus	..	—	3	—	0	5	—	—	0	0	—	8

TO CORRESPONDENTS.

* * All questions forwarded to us for publication in this "Corner for Students" should be accompanied by the answers which the propounders believe to be correct. Communications should include the names and addresses of the writers; those which reach us after the first day of the month will be disregarded.

NUMERICAL RESULTS.—In order to secure uniformity, we require the fractions of numerical results expressed in three decimal places, due allowance being made for large remainders.

POSTAGE.—We must draw the attention of our correspondents to the fact that we have frequently to pay extra postage on manuscripts over weight, and request that they will be particular to pre-pay their communications sufficiently.

J. J. Kendall.—II. In solving this problem you obtained a correct result by a most indirect method, it being quite unnecessary to ascertain the weight of the chlorine.

Edina.—I. The formula given in the Pharmacopoeia for baric chloride, under the head of "Articles employed in Chemical Testing," is $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$, not BaCl_2 .

W. H. Waddell.—III. Your answer to this question is incomplete. The formation of the white precipitate and its gradual conversion into a black one is a peculiarity characteristic of mercuric solutions. The questions sent in July were rejected, but we shall be happy to receive others. If a question contributed be not adopted, it may suggest many analogous questions.

J. W. Evans.—II. You might have obtained a more correct result by working out the decimal fraction, i.e. the proportions for the correction for temperature and pressure.

J. Paulin.—I. See remarks to "Edina" under this head. IV. The reaction which you give in your reply to this question is incorrect; concentrated nitric acid converts glycerin into glyceric acid. VI. The greater part of your answer is entirely superfluous.

J. J. — You do not appear to be aware of the fact that we award extra marks in the column headed E for neatness displayed in manuscript, perspicuous explanations, good methods employed in calculations, and general excellence of a student's answers. We do not require the full particulars of simple arithmetical operations. You may take our printed answers as an example of the form in which we wish to receive solutions.

J. G. A.—See remarks to "J. J." You have erred on the opposite side by not giving as sufficient particulars.

J. C. Thresh.—The weight of 1 litre of hydrogen at 0° C., and under a barometric pressure of 760 mm., is 0.08961 of a gramme; the weight which you adopt in your calculation is 0.086 gram. VI. Your ideas respecting the estimation of iron are quite erroneous, as you may see by

referring to page 394 of the Pharmacopoeia, where you will find that the volumetric solution of potassium bichromate is used for determining the proportion of ferrous oxide in several preparations.

A. P. S.—I. Your solution is excusable on account of the error in this question.

H. Halstead.—VII. Your method is not only defective, but the result is miscalculated.

T. Wilson.—You should show how your numerical results are obtained.

J. S. Ward.—See remarks to T. Wilson. VIII. Our observations to J. G. Thresh under this head are equally applicable to you.

D. Udall.—I. The error in this question was very palpable; you should have detected it. VIII. Ferrous sulphide is not precipitated when hydrogen monosulphide is passed through a solution of ferric chloride.

G. Harvey.—See remarks to J. J. about arithmetical operations; we prefer reactions expressed in the form of equations, as in our printed answers. We have much pleasure in entering your name in the list of contributors.

H. Greig.—I. See notice to D. Udall.

Try again.—It is quite unnecessary to work out numerical results to fourteen places of decimals. We are at a loss to know how you make out that the square root of the density of a gas is nearly always half its molecular weight.

H. J. Jackson.—According to your solution of Problem VII., the water produced by the combustion of 20 litres of hydrogen would weigh about two tons.

A. J. Smith.—You need not go to the trouble of repeating the questions in your paper. I. The formula for Magnesium Sulphate, B.P., is $MgSO_4 \cdot 7H_2O$; see notice to "Edina."

W. J. Smith.—See notices to A. A. Smith. VI. The connection between your answer and our question is certainly very remote.

A. Z.—See notice to T. Wilson.

Cypis Discere.—By arranging your solutions in regular order you will save us a great deal of trouble.

J. H. Watson.—We feel confident that you will derive considerable benefit from this "Corner for Students" if you examine our printed answers carefully, and read the notices to correspondents.

Books offered as First Prizes.

Attfield's Introduction to Pharmaceutical Chemistry. (Van Voorst.)

Brooke's Elements of Natural Philosophy. (Churchill.)

Conington's Handbook of Chemical Analysis; with Tables of Qualitative Analysis adapted to the same. (Longmans.)

Elliott and Storer's Manual of Inorganic Chemistry. (Van Voorst.)

Fownes's Manual of Elementary Chemistry, Theoretical and Practical (Churchill.)

Freisenius's Qualitative Analysis. (Churchill.)

Gannet and Atkinson's Elementary Treatise on Physics. (Longmans.)

Garrod's Materia Medica; with Modern Chemical Notation. (Waltton.)

Noad's Chemical Analysis, Qualitative and Quantitative. (Reeve.)

Northcote and Church's Qualitative Analysis. (Van Voorst.)

Royce and Headland's Materia Medica. (Churchill.)

Williamson's Chemistry for Students. (Clarendon Press.)

[Any other scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.]

Books offered as Second Prizes.

Bart's Introduction to Scientific Chemistry. (Groombridge.)

Bloxam's Laboratory Teaching. (Churchill.)

Church's Laboratory Guide for Students in Agricultural Chemistry. (Van Voorst.)

Galloway's First Step in Chemistry. (Churchill.)

Hofmann's Introduction to Modern Chemistry. (Waltton.)

Huxley's Lessons in Elementary Physiology. (Macmillan.)

Oliver's Lessons in Elementary Botany. (Macmillan.)

Potts's Elements of Euclid. School Edition. (Longmans.)

Roscoe's Lessons in Elementary Chemistry. (Macmillan.)

Wurtz's History of Chemical Theory. Translated by Watts. (Macmillan.)

Wurtz's Introduction to Chemical Philosophy. Reprinted from the "Chemical News."

[Any other scientific book which is sold for about five shillings may be taken as a second prize.]



MANCHESTER CHEMISTS' AND DRUGGISTS' ASSOCIATION.

THE First Annual General Meeting was held in the Memorial Hall, Albert-square, on Wednesday, Oct. 6th, Mr. W. S. Brown, Vice-President, in the chair. The Hon. Secretary, Mr. Bengier, read the Annual Report of the Council, and the Treasurer, Mr. G. S. Woolley, presented his statement of accounts, as follows:—

THE FIRST ANNUAL REPORT OF THE MANCHESTER CHEMISTS' AND DRUGGISTS' ASSOCIATION.

In presenting this, their First Annual Report, your council have to congratulate you on the success which has attended the early days of the Manchester Chemists' and Druggists' Association, not only on the numerical strength which it has attained, but also on the importance of the Educational Scheme which it has been instrumental in organising.

By the hearty co-operation of the Principal and Trustees of Owen's College, a pharmaceutical course has been established in connection with that institution, which cannot fail to be a great boon to the rising generation of chemists and druggists in this district.

It will consist of courses of lectures on the subjects required by the examiners under the Pharmacy Act, viz.:—Chemistry, by Professor Roscoe, F.R.S.; Botany, by Professor Williamson, F.R.S.; Materia Medica, by A. Somers, Esq., Lecturer at the Royal School of Medicine; Two Latin Classes, conducted by Professors Symonds and Wilkins; and a Practical Laboratory Class, under the direction of Professor Roscoe and Mr. Schorlemmer, F.C.S.

Students can enter for either one or more of the subjects. The Professors in the several departments occupy such eminent positions that it would be superfluous to speak of their qualifications; and the fees demanded are so moderate as to be within the reach of all. Judging from the large attendance at the experimental courses of lectures delivered during the last session, your council have great confidence in calling on you to support, by every means in your power, the pharmaceutical courses at Owen's College.

The instruction is open, not only to those connected with your Association, but to the whole trade.

It is, perhaps, desirable, for the information of those not conversant with our proceedings, to recapitulate what has been done during the past session.

The preliminary courses of lectures before referred to were as follows:—Twenty Lectures on Chemistry, by C. Schorlemmer, F.C.S.; sixty-two students entered. Eighteen Lectures on Materia Medica, by Alexander Somers, Esq.; fifty-eight entries. Twelve Lectures on Botany, by Professor Williamson, F.R.S.; twenty-eight entries. Twenty lessons in Latin, by J. Smith, Esq., B.A.; forty-nine entries.

Five papers by members have been read at the monthly meetings, and a *conversazione* and exhibition of objects of interest was held in the Memorial Hall, on the evening of Tuesday, April 23th.

Valuable donations of Materia Medica specimens have been received from Messrs. Evans and Leacher, Messrs. Hodgkinson, Stead, and Treacher, and Messrs. Southall, Son, and Dymond; and the *Pharmaceutical Journal* has been forwarded to us monthly from the society.

An endeavour to induce greater uniformity in dispensing charges has been made with considerable success, and this example has been followed in many important towns.

Your association now numbers 280 members and associates.

The Treasurer's statement of accounts will be found highly satisfactory. Your council was anxious to keep the expenditure of the association as low as possible during the first year, and, with this object in view, somewhat meagre accommodation was afforded for the monthly meetings. The result, however, is a balance in hand of £90 17s. 2d., thus providing increased means of usefulness for the future, and rendering some further outlay for rooms and other advantages justifiable and safe.

If no other result had been obtained than establishing in the North of England a provision for the proper education of pharmaceutical students, your association would have had just ground for congratulation at the end of this, the first session of its existence. Beyond this, it is fairly entitled to assume that, by its means, mutual good understanding and good will have been promoted, much valuable information has been conveyed, and a foundation laid upon which it is hoped eventually to raise an institution commensurate with the improved position and grave responsibilities of the pharmaceutical body.

In conclusion, your council would most urgently impress upon you the necessity for individual exertion to maintain and add to the usefulness of your association, the objects of which, as set forth in your first rule, are "to provide for the better education of assistants and apprentices, the mutual improvement of members, the general advancement of the interests of the trade, and the formation of a library, a museum, and a school of pharmacy for Manchester and surrounding district." It is in the power of every member to help forward one or more of these objects, either by the assistance and encouragement he may give to those in his employ, by the additions he can make to the common store of pharmaceutical knowledge in the contri-

bution of papers for the monthly meetings, or by the donation of books or specimens for the library and museum.

The Treasurer, in Account with the Manchester Chemists' and Druggists' Association.

Dr.		£ s. d.	£ s. d.
1868.	November 9.—To Balance of Fund for Preliminary Expenses	1 16 6	
	By Cash from Mr. Lynch's Executors	8 10 8	
	Bank Interest	0 1 9	
	Donation from Hull Association	0 10 0	
	Membership Fees	106 0 0	
	Lecture Fees	64 15 6	
	Balance brought down	90 17 2½	181 14 5
Cr.		£ s. d.	£ s. d.
1868.	By Cash for Stationery, Stamps, Printing, and Advertising	29 8 8½	
	Owen's College Fees	23 12 6	
	Keighley, Lea, and Co.	8 8 0	
	A. Somers, Esq.	18 18 0	
	J. S. Smith, Esq.	10 10 0	
	Balance in hand	4 1 8½	
	Balance in Bank	55 15 6	181 14 5
Examined and found correct—		JNO. R. BATEMAN, JNO. STANDING.	

The CHAIRMAN, in moving the adoption of the report, said he thought the members generally would be perfectly satisfied with the statements laid before them, especially with the state of the accounts. In the formation of an educational association, they had naturally incurred some risk in providing courses of lectures, but the result proved that they had rightly estimated the number of students who would attend, and they had to provide only a few pounds in excess of the fees paid. He hoped the members would approve the course which the council had adopted in allying themselves with Owen's College, which had provided a most excellent and extended course of pharmaceutical education at a very cheap rate. It was an experiment, and he hoped sufficient students would attend to justify the continuance of the lectures.

Mr. W. SLUGG, F.R.A.S., seconded the adoption of the report, which was carried.

Mr. Bagshaw, Oldham, and Mr. Wheelton, Manchester, having retired from the council, Mr. Barnaby, of Oxford-road, Manchester, and Mr. Hargreaves, of Oldham, were elected in their stead. The various officers having been elected.

Mr. SLUGG moved that the subscription of associates be reduced to 2s. 6d., he thought it had been wisely made 5s. the first year, but now the association had a good balance in hand, he was anxious that young men should have no excuse for not maintaining their connection with it.

Mr. HAMPSON seconded the resolution, which was carried unanimously.

The CHAIRMAN then announced that the monthly meetings would be held in the Memorial Hall on the first Friday in each month, alternately at 8 p.m. and 7 p.m. Mr. Somers, lecturer on *Materia Medica* at Owen's College, and at the Royal School of Medicine, had kindly consented to give an address on the first meeting of the session, Friday evening, November 5th, at 7 p.m.

The usual vote of thanks to the Chairman was then passed.

HALIFAX AND DISTRICT CHEMISTS' AND DRUGGISTS' ASSOCIATION.

The members of the above Association met at their rooms, Mechanics' Institute, Halifax, on September 8th, with Mr. DYER, President, in the chair, to consider the best means for the formation of a general scheme of education for their assistants and apprentices in Chemistry, Latin, Botany, and *Materia Medica*.

The CHAIRMAN, in opening the evening's proceedings, expressed the pleasure he felt in seeing a more numerous attendance of members than usual, and trusted that a yet larger average attendance would be attained. The Secretary would bring before their notice the arrangements which had been made with the Principal of Haley Hill College to meet the requirements of the trade. The absolute necessity of taking some steps to enable their employees to attain a higher

status of scientific knowledge, and to thoroughly qualify them for the passing of their examinations, was a desideratum patent to them all; and as this could be easily effected by their combining together, he trusted they would give their cordial support to the movement.

The SECRETARY (Mr. Hebdon) then explained the manner in which the College were willing to meet the wishes of the Association. Mr. Jarman, F.C.S., would, during the winter months, undertake two classes in Inorganic and Organic Chemistry, and in the summer months a class in Botany. Mr. Gibb would form a class in Latin, and both gentlemen expressed a strong desire to give every help to the Association by teaching specially in view of the trade examinations, and by meeting, as near as possible, our business engagements. These efforts were not great but practicable, and their success, he felt sure, would create such confidence as would lead to greater plans. At any rate, it would be one more link to bind the members together. Meeting and watching the progress of these classes must in time dispel the barriers against real and true fellowship amongst the members, "when a thousand ills the trade was heir to" might easily be removed.

The discussion of these proposals was generally entered into by all present, with promises of their support and entire concurrence.

Mr. FAIR proposed that the Association avail itself of the opportunity thus offered.

The motion was seconded by Mr. JESSOP, and carried.

Mr. DYER proposed that the members this week send to the Secretary the names of the assistants and apprentices who will attend these classes.

Mr. SHAW seconded the motion, which was carried. He then offered to teach a class in *Materia Medica*. The members generally expressed their thanks for the kind offer, which was accepted.

Mr. JESSOP then proposed that the Secretary write to Messrs. Evans, of Liverpool, asking them to favour the Association with the gift of a *Materia Medica* Cabinet.

Mr. BROOKE seconded the motion, which was carried, and the meeting separated.

ASSOCIATION OF CHEMISTS AND DRUGGISTS FOR PLYMOUTH, STONEHOUSE, DEVONPORT, AND NEIGHBOURHOOD.

THE annual meeting of the above society was held on Friday, the 24th of September, at the Athenæum, Plymouth. The Secretary read the report, of which the following is an abstract:—

The Association was formed in September, 1863, and was inaugurated by a conversazione and exhibition of pharmaceutical apparatus and products, held at the Athenæum, on the 21st October, 1863.

The Society has to acknowledge the liberal gift of a handsome case of specimens of drugs and chemicals, presented by Messrs. Evans and Lescher.

H. S. EVANS, Esq., President of the Pharmaceutical Society, paid the Association the honour of attending the first monthly meeting, and afforded those present much useful information relative to the Pharmacy Act.

During the year Papers or Lectures have been read as follows:—

Oct. 21st, 1863, "President's Address," Mr. J. C. RADFORD.
Nov. 11th, 1863, "The Effects of the Pharmacy Act on Dispensing," Mr. SIMON HILL; also, "Spectral Analysis," Mr. F. CODD.

December 9th, 1863, "New Remedies in Medicines," Mr. A. P. BALKWILL.
January 13th, 1869, "Pill Compounding," Mr. SAUNDERS.
February 10th, 1869, "Pharmacy—Past and Present," Mr. TURNER.

March 5th, 1869, "Salt," Mr. J. ALLEN.
April 15th, 1869, "Hydrogen," Mr. OXLAND.

May 12th, "Importance of the Study of Botany to Pharmacists," Mr. F. P. BALKWILL.

June 9th, 1869, "On Adulteration," Mr. FRANKSON.

July 14, "On Anesthetics," Mr. A. P. BALKWILL.

August 11th, "Pharmacopœia Preparations," Mr. N. C. PAILEY.

September 8th, "Vegetable Poisons and their Antidotes," Mr. E. HOLMES.

The interests of the Associates have not been overlooked, and with the object of assisting them to qualify themselves for the examinations of the Pharmaceutical Society, a Materia Medica Class was commenced in May, and has been continued to the present time. The class has been held fortnightly, and conducted in rotation by the following gentlemen:—Messrs. Turney, F. P. Balkwill, A. P. Balkwill, J. Allen, S. Hill, E. Holmes, and J. Dampney.

The association at the present time numbers sixty members and twenty-nine associates.

The report having been adopted, the meeting proceeded to elect by ballot officers for the ensuing year. The following were elected:—

President, Mr. J. C. RADFORD, Devonport.

Vice-President, Mr. TURNERY, Plymouth.

Treasurer, Mr. HERRON, Plymouth.

Secretary, Mr. BREEZE, Devonport.

Committee, Messrs. S. HILL, A. P. BALKWILL, F. P. BALKWILL, H. DICKERSON, F. BRANSON, J. DAMPNEY, J. H. FILMER, and J. ALLEN.

LAW AND POLICE.

OFFENCES AGAINST THE PETROLEUM ACT.

At the Manchester City Police Court, on the 5th inst., Mr. Jos. Brooks, chemist and druggist, of Shudehill, was summoned before Mr. Hoadlam, for keeping petroleum amongst other inflammable materials, contrary to the tenor of his licence and the regulations of the corporation. Mr. Milne, who appeared for the defendant, explained the circumstances under which the petroleum and other goods were kept together by the defendant, and said that he was prepared to give up the licence altogether. Licence cancelled. Mr. Kelleth, chemist and druggist, Great Jackson-street, Hulme, who was licensed to keep 50 gallons of petroleum, was summoned on the same day and before the same magistrate, for having 150 gallons in his possession. The charge having been proved, the defendant was fined £5 and costs.

EXTENSIVE ROBBERY.

At the Coventry Petty Sessions, on the 2nd inst., a man named Henry Hancox and his daughter were charged with having stolen a number of articles the property of Messrs. Wyley and Brown, wholesale druggists, of Coventry, and one Cornelius Barnes, of Camden-street, Birmingham, was charged with having received the same, knowing them to have been stolen. The prosecution was conducted by Mr. Dewes, solicitor. From the evidence adduced it appeared that suspicion having been excited as to malpractices occurring at Messrs. Wyley and Brown's premises, a policeman watched the female prisoner take her father's breakfast, and when she returned he observed something under her shawl. He accosted her, and inquired what she had got, when she pulled a bag from under her shawl, which on examination he found to contain 3 lbs. of lard, and 3½ lbs. of soft soap. She stated that her father had given it to take home to her mother. The officer subsequently took the girl's father into custody, and charged him with the robbery. He then searched the male prisoner's house, and found 70½ lbs. of sugar, 32 lbs. of lard oil, a quantity of lard, 8 lbs. of paint, some preserved meat, sundry bottles of perfume, pots of extract of meat and ointment, cakes of Brown Windsor soap, bottles of sauce, Perry Davis's pain killer, oil, a pint of quinine, mustard, sponges, trusses, jar of pepper, some drugs, and other miscellaneous articles. In searching the house of the prisoner Hancox, the officer discovered nine direction labels, on which were written, "Mr. Barnes, Tyndall-terrace, Camden-street, Birmingham." In consequence of this discovery, the officer went to Birmingham, and saw Cornelius Barnes, who after being cautioned, said, at first, that he knew nothing of Hancox. The officer searched Barnes's house, and found some bags and some cloth, which Barnes afterwards admitted that he had received from Hancox. On the 26th September, the officer again went to Barnes's house at Birmingham, and

questioned him relative to the labels, when Barnes admitted that they were in his handwriting, as he had nine months before, at Hancox's request, written them. The officer then apprehended Barnes, and on again searching the house in Birmingham, found four other bags similar to the two previously found. The wife of a carrier to Birmingham, named Pettifer, spoke to having received for dispatch to Barnes, at Birmingham, several hampers of goods, which had been delivered at her husband's house by the sons of the prisoner Hancox. A clerk in the employ of the prosecutors identified a number of articles in the court as the property of Messrs. Wyley and Brown. The girl was discharged, the charge against her having been withdrawn, but both Hancox and Barnes were committed to the Sessions, to take their trials.

ACCIDENTS.

On the 3rd inst., a fire was discovered on the premises of Messrs. Frederick Green and Co., wholesale druggists, Weaman-street, Birmingham. The fire originated in a covered portion of the back yard, by the overheating of some roots, placed for drying over the boiler. The building above the boiler being used as a warehouse for packed goods, the floor of this warehouse was burnt through, but the fire brigade being soon on the spot, and a plentiful supply of water from a hydrant fixed in the street, the flames were soon subdued, with only a trifling loss. The firm were insured.

On the 3rd inst., an extraordinary ignition of gun-cotton took place on the premises of Mr. John Reed Rowe, manufacturer of the article, at Penryn. There was no explosion, but everything on the premises were destroyed. Men were employed in getting out horses to cart a large quantity of the gun-cotton away for blasting purposes. There was about 40,000 charges.

A man named Reynard Kexley, in the employ of Messrs. Wild and Crossley, drysalers, of Leeds, met his death on the 14th ult. He was engaged repairing a cylinder, in the interior of which was snafing having several arms. By some accident he set the machinery in motion, and was so severely injured, that he died in a very few minutes after he was rescued.

On the 9th inst., a sad and fatal accident occurred to Mr. Dearden, formerly in business as a druggist in the Infirmary-road, Sheffield. It appears that the unfortunate gentleman went out shooting with a friend in the neighbourhood of Carlton, and left the railway station at that place by an evening train for Sheffield. When the train was running into the Retford station, and while it was yet in motion, he opened the carriage door and jumped out, but unfortunately, not getting clear of the carriage, one of his legs became entangled in the wheel, and falling between the carriage and the platform, was frightfully crushed, his chest being completely smashed. Mr. Dearden was extricated as quickly as possible, and medical assistance promptly obtained, but life was extinct. The deceased gentleman was well known and respected in Sheffield.

GOSSIP.

The general meeting of the Birmingham Chemists' Assistants' Association, the first assembly after the recess, was announced to be held on the 13th inst. at the Globe Hotel, the president, Mr. Churchill, jun., in the chair.

A pharmacy has just been opened at Montpelier, France, by Madame Deumergue, Bachelor in Science. This is the first establishment of the kind in France, under the direction of a woman.

The winter session of the Sheffield School of Medicine commenced on the 1st inst., when the introductory address was delivered by Mr. Arthur Jackson. The president of the school, Dr. Bartolome, occupied the chair on the occasion.

The winter term of the Birmingham Queen's Hospital was inaugurated on the 8th inst., when Mr. Sampson Gamgee delivered the introductory address in the theatre of the hospital, and the prizes were distributed to the successful students by Dr. Fleming.

The employees at the Worcester Chemical Works (Messrs. H. Webb and Co.), accompanied by their wives, etc., proceeded to Knightsford Bridge, on the 23rd ult., to enjoy their annual treat provided by their principals. A most enjoyable day's pleasure was realised, and the party returned to Worcester at an early hour in the evening.

The new oil cake mills of Messrs. Shaw and Blewitt, at Northampton, were opened on the 1st inst., and the event was celebrated by a dinner given by the firm to their employees and friends, at the Angel Hotel. The premises have a canal frontage, and machinery has been placed in the building by Messrs. Fowler and McCollins, of Hull, for carrying on double the amount of business they have hitherto done.

Mr. Horsley, the county analyst of Gloucestershire, made some experiments demonstrating how he had succeeded in making nitro-glycerine inexplosive and harmless, and also to test the dangerous character of his explosive powder, at Cheltenham, on the 25th ult. The experiments took place in the yard of the Messrs. Marshall, and were witnessed by an immense number of persons. Some of this Cheltenham chemists powder was placed on an iron plate, half an inch thick, and fired, the result was a tremendous explosion, and the iron plate was shattered to fragments. Mr. Horsley was desirous of testing a torpedo filled with the same compound, and a large iron tank, holding about sixty gallons of water, was prepared for the experiment. The torpedo was artificially supported, and it was intended that its destructive effect should be exhibited in an upward direction. When the fuse was fired, the result was more than expected by the operator. A fearful explosion took place, and the cistern was shivered to atoms. Luckily the audience was screened, or some fearful calamity might have ensued. The pieces of iron flew in all directions, doing considerable damage to the surrounding property. It is stated that Mr. Horsley has received an order from the Russian Government, to send some of these torpedoes to Russia, so that they may be tried in the Baltic in the ensuing spring.

CONTRACTS ACCEPTED.—The guardians of the Walsall Union have accepted the tender of Mr. Sneyd for the supply of double trusses at 2s., and single ones at 1s. 6d. each.

WOLVERHAMPTON UNION.—Drysaltaries, Mr. William Wootton.

Trade Memoranda.

Messrs. Severs and Bateson have succeeded to the business of the late Mr. J. Severs, of Kendal. Messrs. Mackereth, of Ulverston, and Bagnall, of Lancaster, were employed as valuers.

Messrs. Fox and Hudson, chemists, of Auckland, New Zealand, have dissolved partnership, and the business is now conducted by, and under the title of, Hill and Hudson.

In the ordinary course of things, the Lord Mayor of London for 1870 should have been a druggist. Mr. Alderman Dakin stood next in rotation to the present chief magistrate, but he has declined the honour, at least for this year.

Chemists should see to their stock of respirators, chest protectors, and the like, before the winter season sets in. We have not met with anything new this season in these goods, but our advertisement pages contain several useful announcements of standard goods.

Several prosecutions have taken place under the Petroleum Act, which should be well understood by all who deal in it. A Mr. Green, an ironmonger, of Pride Hill, was summoned before the Shrewsbury magistrates, for keeping in stock, under conditions contrary to the Act, certain petroleum which had been supplied to him by Messrs. Samuel and Pearce, of Liverpool. The prosecution was based on the testing of Mr. T. P. Blunt, F.C.S., who admitted that this

was the first he had tested since the new Act, and who stated the igniting point to have been 93° and 100°. In cross-examination this witness did not seem very confident, and the defendant's solicitor produced abundant evidence of the accuracy of Messrs. Samuel and Pearce's guarantee, that their oil would not ignite under 103° or 104°, and the magistrates unanimously dismissed the case. Messrs. Thorowgood and Son, of Cook-lane, City, wholesale dealers, were summoned by the City authorities, and fined £5 and costs, for keeping petroleum without a licence. They had applied for a licence and it had been refused. On further application, a representative from the Guildhall had examined the premises, and suggested certain alterations, which had been carried out at a great expense, and thus having complied with orders, Messrs. Thorowgood had assumed a right to continue the sale and storage of petroleum. Undoubtedly they had broken the law, but it is hardly fair on the part of those who control this matter, to allow firms to be put to expense, as we have known to be the case in more than this one instance, and then to refuse to grant a licence.

Messrs. John McCall and Co., Houndsditch, London, the Australian meat importers, and the originators of the "People's Market" at Whitechapel, have stopped payment. Liabilities estimated at from £50,000 to £60,000. Books in the hands of Messrs. Cooper Brothers and Co., accountants.

Messrs. R. H. Millard and Son, of 44, Barbican, have issued a new trade catalogue of patent medicines and druggists' sundries.

The Directors of the London and Devon Biscuit Company, who have purchased a large private business at Barnstable, invite chemists and druggists to become shareholders in the concern, and thus secure an interest in the extension of the connection. They are already doing a considerable trade, which will doubtless be largely increased when a general home and export trade is established through an efficient London staff.

The Messrs. Cadbury, of Birmingham, have recently introduced some pretty pictorial novelties on their sixpenny boxes of chocolate *crèmes*, designed by Richard Cadbury (a member of the firm), and admirably worked out in colours by Messrs. Kronheim and Co. During the performance of Robertson's comedy of "Home," at Birmingham, on the 22nd ult., in the opening scene, Colonel John White (Mr. Sothern) presented Bertie Thompson (Lucy Dorrington's Lover) with an conciliatory gift in the shape of a box of Cadbury's chocolate *crèmes*. The dialogue that ensued was so much appreciated by the audience as the box was by the recipient.

The following chemists have recently been appointed agents to the "Litre Bottle Wine Company."—F. Dickinson, Stamford; J. Halsey, St. Albans; F. A. Davidson, North Shields; A. Baylis, Evesham; T. Buckley, Knighton; J. Ross, Dumfries, N.B.; J. K. Deans, Galashiels, N.B.; J. Wannan, St. Andrews; Cleland, Alloa; J. Sutherland, Arbroath; J. Shaw and Co., Dundee; R. Mackay, Inverness; J. Able, Forfar; Dingwall, Perth; A. Davidson, jun., Aberdeen; H. Holman, Barnet; E. H. Nander, Kenilworth; W. J. Hamilton, Dalbeattie; W. Barr, Kircudbright; J. Swan, Hawick, N.B.; Noble, Dunfermline, N.B.; G. Boyce and Son, Montrose; A. Mackay, Peterhead; J. Davidson, Elgin; W. Sutherland, Macduff; Gillan, Aberdeen; T. S. Brand, Dundee; W. Dymock, Linlithgow; G. Smith, Glasgow; J. Hamilton, Hamilton; G. Milner, Bradford; J. W. Brook, Dewsbury; J. Binns, Harrogate; H. Edwards, Woolwich; W. H. Verralls, Canterbury; S. H. Russell, Southampton; J. T. Nalder, Birmingham; H. Brown and Son, Glasgow; Turnbull and Co., Newcastle-upon-Tyne; J. L. Heaton, Batley; P. Humphrey, Cliftonville, Brighton; D. Orpen, Thame; J. M. Browning, Deal; J. Elliot, Surbiton; J. Brevin, Newcastle.

TENDERS.

PARISH OF BIRMINGHAM.—At the meeting of Guardians for receiving tenders for the supply of dysalterytes, the following tradesmen sent in estimates, with the quotations for each article:—

	Joseph Clunham and Son, Lancaster-st.	J. Key Adams, 20, Whitl- acre-st.	F. Williams, Broad-street.
Oak Varnish	2 s. d.	2 s. d.	2 s. d.
Boiled Oil	0 3 0	0 3 0	0 3 0
Lamp Oil, as per sample	0 3 2	0 3 2	0 3 0
Shoe Oil, ditto	0 4 0	0 3 4	0 3 10
Linsed Oil	0 3 2	0 3 2	0 3 8
Olive Oil	0 3 0	0 2 8	0 2 10
Turpentine	0 5 6	0 5 0	0 5 6
Best White Lead	0 2 9	0 2 3	0 2 8
Best Red Lead	1 3 0	1 6 0	1 8 0
Yellow Ochre	1 6 0	1 2 6	1 4 0
Venetian Red	0 9 0	0 15 6	0 10 0
Brown Umber, ground in oil	0 9 0	0 15 6	0 10 0
Raw Umber, ground in oil	0 0 2	0 0 2	0 0 2
Chrome Yellow	0 1 0	0 0 7	0 1 0
Lime Blue	1 10 0	1 6 6	1 9 0
Roll Brimstone	0 12 0	0 11 0	0 11 0
Patent Dryers	1 4 0	0 16 6	0 19 0
Glue	44/ & 56	2 4 0	2 2 0
Pitch	0 12 0	0 10 6	0 11 0
Putty	0 9 0	0 8 0	0 9 0
Alum	0 14 0	0 7 6	0 9 0
Glass Paper	0 12 0	0 12 6	0 9 0
Black Lead, Pure Lump, in casks ..	0 19 0	0 18 0	0 1 0
Soft Soap (Scottish), in tins			
60 lbs. each	0 18 0	0 11 3	0 12 0
Whiting	1 9 0	1 16 0	1 10 0
Bath Bricks	0 9 0	0 6 6	0 6 6
Black Japan	0 5 0	0 4 6	0 10 0
Russian Tallow	2 12 0	2 12 0	2 10 0
Bees' Wax	8 10 0	9 10 0	10 0 0
Blue Black	0 8 0	0 6 0	0 8 0

The three tenders were accepted by the Stores Committee, the lowest quotation of each article to be selected, and where equal, the quantity to be divided.

GAZETTE.

BANKRUPTS.

BEER, JOHN, Woolwich, veterinary surgeon.
CARTER, R. B., Princes-street, Hanover-square, surgeon.
COLLINS, W. F., 243, High-street, Shadwell, sauce and pickle manufacturer.
DANK, H., The Station Hotel, Hadley, Wellington, Salop, innkeeper and veterinary surgeon.
DYER, W. G., 3, Union-road, Clapham, chemist and druggist.
HALL, JOS., jun., Darlington, chemist.
MITCHELLSON, G., Gateshead, chemist and druggist.
MORAM, M. L., Peckham, dentist.
SHAW, E. C. J., Elstree, Herts, surgeon.
WILLIAMS, A. S., Aberaman, near Aberdare, chemist.

PARTNERSHIPS DISSOLVED.

ALLEN, J. T., and SAGE, C. J., Frome, chemists.
BELL, ROUTLEDGE, and Co., Newcastle-on-Tyne, mineral water manufacture.
BLANKLEY and BLANKLEY, Gainsborough, chemists.
ECKERSELEY and ECKERSELEY, Oldham, druggists.
FAIR, G. F., and PURROUGHS, T. J., West-square and Union-street, South-wark, surgeons.
GIFFORD and Co., 160 and 162, Drummond-road, Bermondsey, mustard manufacturers and drug grinders.
HOLDER, T. and J., Walworth-road, druggists' sundriesmen.
HOPWOOD BROTHERS, Huddersfield, druggists.
KIERMAN, LAWRENCE, and RALPH, C. H., Doncaster, medical and surgical practitioners.
MORGAN, W. V., WALLS, J. H., and CLOSE, J., Cannon-street, City, druggists' sundriesmen.
PRATER, A., M.D., and PRATER, C. A., Woolwich, surgeons.
SMITH, H. and A., Burton-crescent, London, patent medicine vendors.
SMITHERS, F. O., and CHRISTHERSON, C., Great Tower-street, City, chemical agents.

COMPOSITION DEED.

MOSELEY, S. G., Cardiff, surgeon, 2s. 6d. per 2, in three equal instalments.

PASTE.—The following is a recipe for making common paste, which will keep for a long time without fermentation:—Dissolve an ounce of alum in a quart of water warmed; when cold add as much flour as will give it the consistence of cream; then strew into it as much powdered rosin as will lie on a shilling and two or three cloves, ground. It will keep for a year, and when dry may be softened with water.



AMERICAN JOURNALS.—*Emigrant*.—THE CHEMIST AND DRUGGIST circulates largely in the United States and Canada. The "New York Druggists' Circular," and the "New York Druggists' Price Current," are published for the same class in that city. New York would be sufficient address for either. We do not know their charges for advertisements.

ALMANACK.—*J. S. Hewitt*.—We thank you for your suggestion, which will probably be adopted.

CORDIAL.—*S. H. B.* would be glad if any reader would recommend him a really practical work on cordial-making.

OZONE TEST.—*J. Bulson* and *F. Jasper*.—See answer in our "Corner for Students."

J. F. Carlisle.—A formula was given in a former number of our journal. We will publish one next month.

IF P.—The official Register of Chemists and Druggists is published by the Pharmaceutical Society, 17, Bloomsbury-square, London, price 7s. 6d.

P. E. F.—The contents of the bottle were lost owing to imperfect corking before the bottle reached us. The cost for analysing such a preparation would probably be two guineas, certainly not less than one guinea.



VICTORIA.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—I don't remember seeing in your journal any information relating to these colonies, on which my "brethren of the pestle" could form an opinion as to the desirability or otherwise of trying their fortune in this land of "kangaroos and gold nuggets." I therefore purpose, by your leave, giving them a slight outline as to the state of affairs here from a chemist's point of view.

Firstly. I think a very erroneous impression prevails in the "old country" as to the population, as well as the style of business here, so perhaps a few statistics will not be out of place. The population of the colony at the end of 1867 was about 700,000, the number of chemists in business being about 260. Melbourne itself has a population of 51,000, the suburbs, i.e., within ten miles, 130,000, thus making a total of 181,000; amongst whom are distributed ninety retail druggists, seven wholesale ditto, three analytical, and two homeopathic. We are also favoured with 145 medical practitioners, one Chinese, one hydropathic, and two homeopathic ditto. Thus you will see the average population is 2,000 to each chemist, which would be looked on, I suppose, as pretty good, were there not another side of the picture, the worst evil in which is the benefit club system, which is carried to such an excess that a thorough good dispensing business is quite a rarity. The reasons why the majority of our population are "Odd Fellows," "Foresters," "Druids," etc., are, firstly, the high fees charged by the medical men in times gone by, thus making it imperative for men of moderate means to join some club in order to obtain medical assistance at a reasonable rate; and secondly, many of those who joined some years ago being now in better circumstances, still continue to belong to their club, and thus induce others, who could also very well afford to pay for advice, etc., to become members too. Thus it happens that in every township, large or small, nearly three-quarters of the population are club patients, and therefore of very little

profit, in a dispensing point of view, to the chemist and druggist. The second evil is the cutting up of our trade by storekeepers (in the old country yeapt "grocers"), drapers, and others. This is caused by the youth of the colony, as, in its infancy, when no chemists were here, the storekeeper was the person who sold physic as well as tea, sugar, pick and shovel, and moleskin trousers; and now, although there are chemist's shops in almost every street, the public would sooner get their pills at the same shop as their candles and butter, because it saves going to another shop, and they are afraid of being charged a few pence more. The latter, I think, is the most powerful argument in favour of the storekeeper, as no sane chemist would think of competing with him in selling Holloway's Pills and Steedman's Powders at 11d., when 13d. is your price, to which freight, duty, and other charges have to be added. As further samples of cutting prices, I may quote Seidlitz powders at 8d. per box, castor oil 8d. per 6 oz. bottle, Epsom salts from 1 oz. packets for 1d., etc. etc. Of course, as I said before, we do not attempt to compete with these prices, patent medicines (small) being charged 1s. 6d., Seidlitz powders 1s. 6d. and 2s., and dispensing prices are very similar to those in the West End of London, viz., 8 oz. and 6 oz. mixtures 3s. and 2s. 6d., draughts 1s., pills 1s. and 1s. 6d. per dozen. The same rule may be observed in the counter trade, for, as far as I have seen, West End prices may be taken as a fair sample. Rents are very high, a small shop with one room behind (all the upper part of the house being let to different tenants), in the chief streets in Melbourne, being worth £3 to £5 per week, according to position. In the suburbs, of course rents are lower; in a good street, a shop and four-roomed house may be had for £11 10s. to £2 per week. Salaries for assistants are much lower than a few years ago; they vary from £1 to £2 10s. per week with board and lodging; but in consequence of the large number of assistants generally out of situations, it is only the larger establishments that pay the high salaries, by which they secure old colonists, who are much preferred to "new chums." On the whole, if any chemist should be hesitating whether to come here or not, I should advise him to stay in "Old England," unless he has capital, in which case I don't think he could select a better country to settle in than Victoria.

I hope the above rather unconnected scraps of information may prove useful and profitable to your readers, and I shall be glad from time to time to occupy a small space in your journal; in the meantime, apologising for this rather lengthy epistle,

I am, sir, yours, etc.,

"YARRA YARRA."

Melbourne, August 14, 1899.

THE OBSCURITIES OF THE PHARMACY ACT.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—Never, I should think, was an Act of Parliament passed affecting so many people as the Pharmacy Act of 1868, that was so vague in such a variety of particulars, and so unintelligible to those whom it most closely concerns. Such I am bound to say of it, not from any want of charity, but from stern necessity. Where, I ask, is the chemist, or any one else, who can give a decided reply to the several important questions that must necessarily arise in the usual routine of our professional life? But should this be so, in so weighty a matter, such vagueness, such extraordinary diversity of opinions, such utter want of knowledge about so short an Act? I grant this year's amendments have enlightened us a little. That chemists are not ex-

pected to unravel the mysteries of an Act of Parliament with the same dexterity as barristers, I frankly admit; yet there are many Acts which, if a man of common sense read, he can give a tolerably correct opinion of what is therein conveyed.

It is a commonplace remark, that no Act of Parliament leaves St. Stephen's that does not allow of a coach and four being driven through its technical labyrinths; but if so, surely the Pharmacy Act would offer little resistance to a still more imposing equipage.

Most of us were of opinion that something was required in the shape of legislation, but what that something should be was a matter that few could determine themselves or explain to others. But dissatisfaction begot a scheme, and agitation kept it floating till at last the machinery was set in motion, and hence the Pharmacy Act of 1868.

The preamble of the said Bill reads correctly enough, and one can hardly offer an objection to so seemingly favourable a preface. Not so, however, the clauses. Take the first, for example, which states, after a certain date it shall be unlawful for anyone to assume the title of chemist or druggist, etc. etc., or to keep an open shop for selling or compounding poisons. Now, the great question arising from this clause is, Does the word poison apply simply to those named in the Schedule, or to poisons generally; because if to the latter, many are selling them that ought not, while if only to the former, it simply touches those poisons which were rarely sold by others than chemists, and by the latter only under restrictions similar to those imposed by the Act?

Again, do the poisons in the Schedule mean only the Pharmacopœia preparations, or all the compositions containing such poisons unless exempted by the seventeenth clause? If it apply to all poisons, what ought we not to register? This brings me to the various vermin killers and sheep-dipping compositions. Some chemists register the sale of these articles, others do not; yet who knows which practice is right? Probably, many believe that these preparations come within the meaning of the Act; but if they do, why can any but chemists sell them? There certainly are many others who do. Why, again, can veterinary surgeons keep open shops and call themselves chemists? Surely, this was never intended by the Act. There is really so much abstruseness about the Bill, that a clear and authorised explanation of it would be a great boon to those engaged in the business.

I do not for a moment disparage the Act or its restrictions, regulations, or impositions; but on the contrary, think by-and-by all will work well. But as long as we are at variance in our observances of its clauses, we are, as it were, beating the air and disgusting the public. When a customer goes to one chemist for vermin killer, etc., he is requested to sign the "poison book;" but on going to another for the same article nothing of the kind is advanced. This want of uniformity in practice is unquestionably very unsatisfactory both to the public and to ourselves.

This uncertainty calls for some protective influence; we need some one to fly to, who should be thoroughly conversant with the requirements of the Act, as an adviser of a moderate charge. I cannot help thinking that the scheme of Mr. Barnaly, of Rochester, for mutual protection was an excellent one. He tried hard to get us to see it; but no, our constitutional apathy displayed itself to perfection, and only comparatively few of us showed any willingness to embrace a good opportunity.

The Pharmaceutical Council are doing, and I have no doubt will do their best for us; but what we require is ready help, some one to assist when needed, not after decisions have been made which are seemingly in opposition to the spirit of the Act. I have endeavoured, whenever opportunity has offered, to convene with others in the trade about the Act, but I have never found any one able to explain its real meaning. I accordingly offer these remarks about the first clause to the readers of this journal, in hope that ere long we shall have our doubts set at rest, not by lessons of painful experience, but by reciprocal and united conclusions. I would also add, that the difficulties, though apparently great, can be diminished to the smallest possible dimensions by harmonious action; for if we all observe the same regulations, the public, instead of grumbling, will accede to our wishes, and consider they are only doing that which the laws of their country demand. Once more, if

there be any misgiving as to a registry of sale or otherwise connected with the Act, we ought, I say, as the chiefly responsible parties to protect ourselves, considering that the only difference to the customer is the nominal trouble of signing his name.

Yours, etc.,
NEMO.

PHILLIPS v. LESTER.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—In the last number of your periodical you gave a report of the above case, and, although the report itself was brief, the letters which were contained in it, written by the complainant, went far to explain the cause of the proceedings, and to prove that they were based upon selfish motives. In another letter from Mr. Phillips, which also appears in your last, he endeavoured to reconcile these facts, and to put a new face upon them. Were it not that he departs from truth, I should not notice his remarks, but he makes certain gross misrepresentations, which it may appear to the public require contradiction. The letter in question commences by making the subject of "vast importance to the trade," and its strain throughout is to try to influence the trade, with Mr. Phillips at their head, to do what he individually has failed to do. I have no doubt that the Pharmaceutical Council will look to the welfare of the body of chemists, and anything which may be found to interfere with that body would be taken up as a public—not personal—question. Mr. Phillips goes on to say that my Sheep Dip was retailed at 1s. instead of 1s. 4d. as marked on each packet. He omits to state that he himself sold the packets at a reduced price—and, if I am correctly informed, he was the first to reduce it—for the purpose of securing the trade. He found my agent working up a good trade in an article opposed to that of his own make, and, of course, did not want to lose his customers, several of whom had given their testimony in favour of my preparation. A quotation from Mr. Phillips's second letter will show further how matters stood between him and Mr. Lester. It runs thus: "As you decline supplying me with it, I am determined to spoil his trade in it, and rather than be beaten by such a niggardly fellow as he is, I will sell it at cost price. I have seen my customers, many of whom have their names attached to your list of testimonials, and I have told them that I shall supply them at a lower price than Lester offers it." Surely there is not much room for complaint after such an assertion. This state of things will show how it is that my Sheep Dip, owing to the great demand for, and consequent competition in it, is occasionally sold by agents at a reduced price.

Next comes one of those sweeping assertions for which Mr. Phillips is so remarkable, viz., that "upon inquiry he found I was supplying Lester at 10s. per dozen, carriage paid, and allowing a discount," and that "he mentions this fact to show the manner in which I do my trade." The manner in which he does his own trade is explained above in the quotation from his letter. My Sheep Dipping Powder is, as most chemists are aware, invoiced by me (and by my wholesale agents) at 12s. per dozen, but, for cash within fourteen days from date of invoice, I allow 2s. per dozen discount, making the net cash price 10s. I pay carriage upon all orders amounting to one gross of the packets. These are my fixed terms, and I can prove that there has been no deviation from them in Mr. Lester's case. Any chemist who can pay cash for it, can have it at that price, unless there are special reasons for refusing the supply. You must be aware of the fact that, in opening new accounts, it is sometimes good policy for my representatives to "turn on their heel" as Mr. Phillips puts it. I venture to say they do it only where it is necessary to exercise discretion, and then not so abruptly as here indicated.

Mr. Phillips goes on to say that I admitted his analysis to be correct. This is utterly false. I admitted nothing further than the presence of sulphide of arsenic in the powder, and, to bear me out, I took a report of the subsequent analysis of my Dip, by Professor Tuson, of the Royal Veterinary College, to the second hearing of the case, rather than let the matter rest entirely upon my own statement. This report showed the incorrectness and absurdity of

Mr. Phillips's analysis, and the presence of ingredients altogether overlooked by him, as well as the absence of one of those which he said was present. This shows the folly exhibited by a "Registered Chemist and Druggist" in attempting such operations.

After giving his own reasons for the adjournment (for the magistrates did not express *theirs*, and I may add that, between the first and second hearing of the case, two of them bought my Sheep Dipping Powder from Mr. Lester for their own flocks), Mr. Phillips remarks, that my name is not to be found upon the new register. What a useless insinuation is this! What ignorance of the real meaning of the Pharmacy Act is here displayed!

Would he find the names of my examiners in Chemistry and Materia Medica, viz., Dr. Alfred Swaine Taylor, M.D., F.R.S., Professor Brande (of Her Majesty's Mint), and Professor Morton, or of my teacher, Professor Tuson, upon that Register? Certainly not; and until these and other noted chemists are enrolled, I shall be quite satisfied for my name to be absent from the list. The fact is, we do not boast the title of Retail Druggist, but adhere to Chemistry in its proper sense. It is true that, besides gaining the diploma of the Royal College of Veterinary Surgeons, I had the good fortune to win the first Prize Medal for Chemistry, and a Coleman Prize Medal, etc., but that does not put me upon the Register as a "Chemist and Druggist." If it were any advantage to me, I would soon have my name on that Register, but at present I see none.

I did not admit my Dipping Powder to be "nothing more nor less than sulphide of arsenic," neither did I attempt to enlighten the magistrates as to the way of making the sulphide. In dismissing the case, the magistrates ordered Mr. Phillips to pay the costs, but he proposed that they order me to pay the costs of adjournment, amounting to only 3s. This I refused to pay, the prosecution being so meaningless, and the case so clearly in my favour. I did not pay, neither was the amount paid by anyone on the defendant's side of the case, nor on his behalf.

Having contradicted some of his untrue assertions of Mr. Phillips, I will not at present follow him further, but leave the matter open to the decision of those in the trade to whom he has appealed, from whom I am sure he will have credit for all he deserves.

In conclusion, Mr. Editor, I will remark that I shall be glad to push my business through chemists and druggists, as I have always done when propriety would allow me, and when they feel disposed to deal in my class of goods. I say *when they feel disposed*, for there are many chemists and druggists who, when asked to accept an agency for Sheep Dip, etc., reply after this manner:—"I do nothing in goods of that class; my business is chiefly dispensing; I have no desire to cultivate a heavy trade. Try the ironmongers, seedmen, grocers, etc., who lay themselves open to do the heavy trade." This is especially the case in Scotland—the principal market for Sheep Dipping compositions. If chemists and druggists object to sell preparations sent out in such a clean, compact form as my Sheep Dip, how much less will they deal in the poisonous colours, paints, etc., which they must necessarily do if the sale of poisons is to be confined to them. Surely this is not the way "to improve the standard of chemists and druggists." It appears to be very improbable that the sale by retail of poisonous colours, and many other preparations which I could name, will ever be confined to them. Such goods are often required in villages, etc., where no chemist is to be found. The sale of them would be quite as safe with respectable, conscientious men of other trades, for scientific knowledge cannot be a plea in selling proprietary articles. The Legislature may have compelled such men to keep a register of poisons. I believe some such proviso as this existed in the Pharmacy Act as it stood originally; and better far would it have been for all parties—and especially for the Pharmaceutical Council—if such had become law, for there are certain poisonous agents which will never be sold under its restrictions as it now stands.

When various circumstances, at present undecided, are set at rest by the Pharmaceutical Council—when all *retailers of poison* are put on the same footing, whether colour dealers, or any other of the numerous trades in which poisons are sold, when the retailing of poisons in ounces and pounds, and in paper without even string or any other security,

much less a poison label—I say when all this is stopped, and proprietary articles are put upon the same footing (which will give some trouble), rest assured I shall not dissent, for I shall be able to get over all this, and to carry on my business in a more select field than heretofore.

I am, Sir,

Your obedient servant,
W. F. COOPER.

PETROLEUM AND INSURANCE.

TO THE EDITOR OF THE CHEMIST AND DRUGGIST.

SIR,—The insurance companies having determined to reap for themselves the benefit of the remission of the duty on fire insurance at the cost of chemists and others dealing in petroleum, it becomes the duty of those tradesmen to combine for the protection of their own interests. The current minimum rate of 5s. per cent. for stock and buildings of an ironmonger, even if petroleum is stored and sold, is manifestly in excess of the risk. No accidents sufficient to warrant the offices in the increased demand have happened with petroleum; in fact, the storage of petroleum is quite as safe as turpentine, brandy, or any other spirit.

One of two things should now be done by the trade—either to cease insuring until a reasonable rate is again adopted; or, what I think would be preferable, to assist in the formation of a new insurance company, in which any tradesman, whether selling petroleum or not, might insure his stock at, say, 2s. 6d. per cent. per annum.

The formation of such a company would not only be a boon to dealers in petroleum, but would also be attended with pecuniary success to the shareholders. It would embrace amongst its policy-holders most of the ironmongers and druggists, many grocers, Italian warehousemen, and oil and colourmen. And all this business might be transacted by post, thus avoiding the expensive system of agencies.

If you should deem the subject worthy of a place in your valuable journal, I hope it will meet the eye of some member of the trade enterprising enough to give effect to my suggestions.

I remain, Sir,

Your obedient servant,
AN IRONMONGER.



[The following list has been compiled expressly for the CHEMIST AND DRUGGIST, by L. de Fontaine-neuve, Patent Agent, 4, South-street, Finsbury, London; 10, Rue de la Fidélité, Paris; and 3, Rue des Minimes, Brussels.]

Provisional Protection for six months has been granted for the following:—

- No.
2039. W. Pidding, of Walcot-square, Lambeth. Improvements in the mode or modes of obtaining scents, aroma, perfume, or essential oils from flowers and from all vegetable substances, producing the same also in the manufacture of soap and apparatus in connection therewith. Dated 6th July, 1869.
2328. J. T. Way, of 9, Russell-road, Kensington. Improvements in the manufacture of soap and in cleansing wool and woollen goods. Dated 3rd August, 1869.
2345. E. Beanes, of Cordwallens, near Maidenhead, Berks. Improvements in preserving articles of food. Dated 5th August, 1869.
2437. G. Ash, of Great Marlborough-street, Dentist. An improved denture or appliance for carrying or supporting artificial teeth in the mouth by suction. Dated 14th August, 1869.
2443. J. G. Dale, and E. Milner, of Warrington, Lancaster. An improved method of producing white pigments from lead. Dated 16th August, 1869.
2482. F. Braby, of Fitzroy Works, Euston-road. Improvements in the means and apparatus for the manufacture of caustic, ammonia, and ammoniacal salts. Dated 19th August, 1869.
2490. W. Byrne, of Belfast, Ireland, Distiller. Improvements in the process of distilling alcoholic liquors, and in apparatus for that purpose. Dated 20th August, 1869.
2547. W. R. Lake, of Southampton-buildings. An improved method of, and apparatus for, rendering and refining lard, tallow, and other fatty and oleaginous matter. Dated 27th August, 1869.

2588. R. Scott and W. McIvor, Chemists, of Addlewell, Middlesbrough, N.B. Improvements in the treatment of hydrocarbon oils. Dated 1st September, 1869.
2610. J. Hargreaves, of 103, Fylde-road, Preston, Lancaster, Chemist. Improvements in extracting phosphoric acid and phosphorus from the tap cinder of puddling furnaces and iron refineries, and from other compounds of iron and phosphorus. Dated 4th September, 1869.
2616. C. F. Claus, of Middlesbrough-on-Tees, York. Improvements in the manufacture of carbonate of soda, and in the recovery of waste products resulting therefrom, and in the construction of apparatus to be employed for such purposes. Dated 6th September, 1869.
2624. W. E. Gedge, of Wellington-street, Strand. Improvements in apparatus for rectifying alcohols. Dated 6th September, 1869.
2654. A. H. Gilmors, of Edinburgh, Commander, Royal Navy. Improvements in means for protecting or shielding wounds, cutaneous injuries, and sores. Dated 9th September, 1869.

Letters Patent have been issued for the following:—

665. W. Betts, of 1, Wharf-road, City-road, Capsule Manufacturer. Improvements in ornamenting and producing trade marks on capsules. Dated 4th March, 1869.
694. L. M. Ruiz, of Rue d'Antin, 1, Paris, Merchant. Improvements in purifying and clarifying all sorts of oils, whether mineral, vegetable, or animal, and in apparatus thereto. Dated 5th March, 1869.
747. W. Betts, of 1, Wharf-road, City-road. Improvements in the manufacture of capsules. Dated 11th March, 1869.
810. C. F. Claus, of Middlesbrough-on-Tees, York, Chemist. Improvements in the manufacture of carbonate of potash, and the recovery of certain products evolved therein. Dated 17th March, 1869.
881. L. A. Israel, of 1, Crescent, Minorities. Improvements in the mode of the machinery or apparatus for manufacturing sulphuric acid. Dated 23rd March, 1869.
886. J. Horsley, of Cheltenham, Gloucester, Chemist. Improvements in protecting nitro-glycerine for conveyance and storage. Dated 29rd March, 1869.
917. W. R. Lake, of Southampton-buildings, Chancery-lane. An improved electro-magnetic machine. Dated 25th March, 1869.
953. B. J. B. Mills, of Southampton-buildings. Certain new and useful improvements in processes and apparatus for extracting oleaginous matter from vegetable, animal, or mineral substances in the preparation of material for distillation and the manufacture of starch, sugar, and fertilizing agents. Dated 27th March, 1869.
958. E. H. Huch, of Brunswick, Germany. Improvements in storing and preserving meat and other articles of food on board ship, and in apparatus for that purpose. Dated 27th March, 1869.
959. W. R. Lake, of Southampton-buildings, Chancery-lane. Improvements in the manufacture of soda and potash. Dated 29th March, 1869.
1032. J. Sterker, of Great Driffield, York, Chemist. Improvements in pressing apparatus for expressing oils and other matters from seeds or other similar substances in which those matters are contained. Dated 5th April, 1869.
1734. F. Lewis, of Dublin, Manufacturing Perfumer. Improvements in bottles or vessels for perfumes, medicines, and other liquids, and in the stoppers of such bottles or vessels. Dated 4th June, 1869.
2028. G. Buchanan, of 14, Surrey-street, Strand, Merchant. Improvements in preserving animal and vegetable substances for use as food, and in apparatus for effecting the same. Dated 6th July, 1869.

Patents which have become void:—

2147. J. S. Nibbs, of the Losells, Aston Manor, Warwick, Lamp Manufacturer. Improvements in lamps for burning a combination of mineral and vegetable spirits. Dated 22nd August, 1866.
2333. R. A. Hardcastle, of Newcastle-upon-Tyne. Improvements in apparatus for measuring and indicating the quantity of liquid drawn off thereby. Dated 11th September, 1866.
2380. P. Brash, of Leith, Soap, Candle, and Oil Manufacturer, and W. Young, of the Old Works, Strathlin, Midlothian. Improvements in the manufacture of oil from shale and other bituminous substances. Dated 17th September, 1866.

Specifications published during the month. Postage 1d. extra:—

1868.
3059. G. T. Bousfield. Extracting the colouring matter of madder. 8d.
1869.
80. J. Ballardier. Inhaling apparatus. 8d.
67. W. E. Gedge. Closing tins or boxes for preserving provisions, etc. 1s. 2d.
192. J. C. L. Carmel. Surgical bandage. 4d.
201. A. B. Cunningham. Throwing horses for veterinary purposes. 4d.
252. T. Vaughan and J. W. Smith. Obtaining purified carbon. 4d.
262. A. Passa. Condensing and purifying fumes, etc. 6d.
117. T. Cook and J. Watson. Presses for oils, etc. 1s. 6d.
267. R. Jones. Curing or preserving animal substances, etc. 4d.
280. J. Macdonald. Stoppes or valves for bottles, etc. 8d.
291. W. Weldon. Regenerating compounds of manganese, etc. 4d.
317. A. E. Harris. Plates for artificial teeth. 6d.
318. W. J. Palmer and W. F. Goulding. Evaporating and calcining alkaline solutions. 4d.
319. W. A. Smith. Preserving meat, fish, etc., during carriage by railway. 4d.
323. J. H. Tyrell. Measuring and drawing off liquids. 4d.
373. J. T. Bousfield. Apparatus for giving medicines to horses and cattle. 4d.
376. E. Meldrum. Manufacture of Paraffin oil. 4d.
392. R. G. and C. W. Phelps. Feeding bottles. 4d.
419. W. Mullion. Surgical bandage. 4d.
419. P. Taysen. Manufacture of stearic and oleic acids. 4d.
434. H. Edwards. Preserved food. 4d.



THE state of trade in the manufacturing districts and shipping towns is generally favourable, according to report, and, as Christmas approaches, we may expect some liveliness to show itself in most departments of the home trade. The perfumery and sundry houses especially experience the benefits of this season, and, as far as we can judge from the manifestations of activity exhibited by such, the importance of the occasion to such becomes year by year of greater importance.

In our last monthly report we pointed out some of the tendencies of the drug market, and expressed our impressions respecting the probable rise and fall in various products of large consumption. Our anticipations have been in every instance verified, and, indeed, our present report needs to be only a repetition of our former remarks.

A circular lately issued by a firm of legal accountants gives a practical and pleasant commentary on the thoroughness of the reforms which the new bankruptcy laws may be expected to introduce into our trading community. These gentlemen appeal, in effect, to the black sheep of the country generally, and shrewdly suggest the inconvenience and risk of delay to those who are desirous of getting their affairs settled in a manner less troublesome to themselves than fair to their creditors, inviting prompt communications from those who would avail themselves of the last few months of grace which the law allows. We do not think that the importance of these new regulations can be easily over-estimated, nor too clearly brought forward and kept in sight of the commercial world, inasmuch as we regard a thorough sifting of the trading portion of this country as a matter of primary importance. Depend upon it, a stricter justice here will add much in time to our national character and to our national prosperity.

Perhaps the most romantic episode in the history of monetary transactions ever recorded occurred towards the latter part of last month in the New York Stock Exchange. For three days a tremendous pitched battle lasted between the "bears" and the "bulls" in the matter of buying and selling gold. A party of the former had conspired to monopolise the available sterling money of the city, and then force it to a fictitious value in order to realise immense profits by selling. The ebb and flow of this vast tide of gambling excited or paralysed every circle of the city, and the demon of speculation seized upon thousands. Fortunes were made and lost in a few hours or minutes, and it is said that during those three days transactions amounting to scarcely less than two hundred millions of pounds took place, and now we read of suicides and decapitations as among the results of this campaign. The collapse was owing to the interference of the Secretary of the Treasury, but while it lasted we doubt whether such fierce excitement was ever known before even on a Stock Exchange. These enormous commotions concern us but little, but their vastness challenges the attention of every class.

We have before us the prospectus of the London and Devon Biscuit Company, which seems a promising concern. We should expect good biscuits from Devonshire, and doubtless, if the shares are taken up by chemists and grocers, a good connection will be ensured. This end the directors have in view, and they have consequently inserted their prospectus in our advertisement pages. The company takes to a business already established.

The following are the market reports:—

CHEMICALS.

Acids: Tartaric dull at 1s. 2½d. for English and 1s. 2d. for Foreign. Citric quiet at 2s. 6d., and Oxalic at 7½d. per lb. Soda Ash has been moving off slowly at 1½d. to 2d. per degree. Sales of Caustic Soda at 13s. 6d. to 13s. 9d. for 60 per cent.; 70 per cent. offering at 16s. 6d. per cwt. Soda Crystals are quiet at 4½ 7s. 6d., and Bicarbonate at £10 per

ton. Saltcakes held at £2 17s. 6d. to £3 per ton. Phosphate selling at 33s. 6d., and Refined Borax 67s. 6d. per cwt. Prussiate steady at 1s. for Yellow, and 1s. 9d. per lb. for Red. Chlorate nominal at 11d. per lb. Bichrome selling readily at 5d. per lb. Muriate offering at £8 10s. per ton. Refined Saltpetre firm at 23s. per cwt. Sal Ammoniac very scarce and inquired for at 33s. for second, and 40s. per cwt. for first quality. Sulphate steady at 16s. 6d. to 17s. per cwt. Carbonate in request at 5½d. per lb. Alum in request at £7 for lump, £7 15s. for powdered, and £8 10s. per ton for ground. Sulphur firmly held at £10 10s. for roll, and £12 10s. per ton for flour. Bleaching Powder continues neglected at 8s. 6d. per cwt. Brown Acetate selling at 13s. per cwt. Magnesia: Carbonate 40s. 6d. per cwt. Calcined 1s. 6d. per lb. Arsenic: Powdered steady at £7 to £7 5s. per ton. Phosphorus: Wedges 1s. 7½d., and sticks 1s. 9d. per lb. Copperas selling at 52s. 6d. per ton. Copper: Sulphate in demand at 23s. 6d. per cwt. Verdigris 1s. per lb. Lead: Sugar steady at 30s. for white, and 26s. 6d. per cwt. for brown. Nitrate 32s. 6d. per cwt.

DRUGS.

As has been remarked above, are in much the same condition as when we last reported. Opium has continued to decline, but we are informed by a large firm that it has probably reached as low a quotation as may be expected for a while. Otto of Roses and Saffron are much dearer. There is a strong demand for French Quinine, which will probably advance. Good qualities of Tinnevely Senna are still difficult to obtain, and sell at higher rates. Koussou is very scarce, and much dearer. Sarsaparilla is still in very limited supply, and prices are well maintained. Nutmegs and Mace, too, have still further advanced. Oil of Peppermint, Ipecacuanha, and Opium and its preparations, show the chief alterations in the opposite direction.

OILS.

Linseed has been in very limited request, and prices have undergone a decided decline, £39 5s. to £39 10s. being the present value on the spot here, and £29 10s. to £29 15s. for Hull, while for October-December £29 10s. would be accepted. After ruling at £38, English Brown Rape on the spot has rallied to £39 to £39 5s., for November-December £39 15s. was paid, and for a special make January to April £41, but the market has been less active to-day, and prices are rather easier. Refined is £41 10s. Foreign Refined has been sold on the spot at £44 to £44 10s., and a good business has been done at £43 10s. for October, and at £43 15s. for November delivery. The market for Refined Cotton Oil has exhibited increased dullness, £36 has been taken for October-December and £35 10s. for January to April deliveries. The demand for Olive Oils has not been active, 10 tons Palermo at £53 and a few casks Tunis at the same price, being the only sales reported; 30 tons Sicilian offered by auction were bought in at £54. With large arrivals of Coconut the market has been without animation, and there are sellers of Cocchin at £44 and of Ceylon at £42, of the latter sales have been reported privately at £41 to £41 5s. cash, and at £41 15s. with the usual prompt. In public sale of 651 casks Cocchin advertised, 530 casks were withdrawn, of the remainder 50 casks yellow to good fair sold at £42 10s. to £43 15s. prompt 3 months, and 16 casks on cash terms, fine hard £43 15s., good middling to good £42 10s. to £43 10s.; 24 casks Ceylon were bought in, yellow to good £41 10s. to £42. 254 casks Sydney nearly all sold, middling to fine £39 to £41, ordinary to low middling £38 5s. to £38 15s., down to £36 for very ordinary. Palm being scarce, and fine qualities in few hands, £43 has been demanded for Lagos, but not much business has been done. No transactions of importance have taken place in Fish Oils.

PETROLEUM.

Of which only moderate quantities have found buyers, has ruled from 1s. 7d. to 1s. 7½d., and S. W. is now obtainable at 1s. 7½d. on the spot, and 1s. 7½d. is the nearest value of November-December deliveries. The stock is 25,406 barrels and 18,744 cases, and the deliveries last week were 2,140 barrels against 20,133 and 2,110 respectively same time last year. Coal Oil has been in good demand at 1s. 6d. to 1s. 7d. per gallon, as in colour. No change in Naphtha.

Monthly Price Current.

[The prices quoted in the following list are those actually obtained in Mining-lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.]

CHEMICALS.	1869.		1868.	
	s. d.	to s. d.	s. d.	to s. d.
ACIDS—				
Acetic	0 4	0 0	0 4	0 0
Citric	0 2	0 4	2 7	2 8
Nitric	0 2	0 5	0 5	0 5
Oxalic	0 7	0 0	0 8	0 0
Sulphuric	0 0	0 1	0 0	0 1
Tartaric crystal ..	1 15	0 0	1 15	0 0
powdered	1 2	1 3	1 2	0 0
ANTIMONY ore.....	250	0 330	230	0 300
star	50	0 0	23	0 24
regulus	51	0 0	13	0 0
crude	50	0 51	48	0 0
ARSENIC lump.....	16	0 16	16	0 16
powder.....	7	0 7	7	0 8
BRIMSTONE, rough ..	161	0 0	137	0 0
roll	11	0 0	10	0 10
flour.....	13	0 13	14	0 14
IODINE, dry.....	0 9	0 10	0 9	0 10
IVORY BLACK, dry, per cwt	50	0 0	0 0	0 0
MAGNESIA, calcined, per lb.	1 2	0 0	1 6	1 8
MERCURY, per bottle	137	0 138	137	0 0
MINIUM, red.....	31	0 21	21	0 23
orange	32	0 32	32	0 33
PRECIPITATE, red.....	2 6	0 0	2 6	0 0
white	2 5	0 0	2 5	0 0
PRÆSNIAN BLUE	0 0	0 0	1 0	1 10
SALT—				
Alum	145	0 150	150	0 155
powder	165	0 170	170	0 175
Ammonia:				
Carbonate	0 5	0 6	0 5	0 5
Hydrochlorate, crude, white.....	430	0 500	430	0 500
British (see Sal Ammoniac)				
Sulphate	330	0 0	330	0 0
Argol, Cape	65	0 78	70	0 82
France	45	0 58	45	0 60
Oporto, red	40	0 24	25	0 27
Sicily	32	0 40	45	0 50
Naples, white	55	0 65	55	0 65
Florence, white	0 0	0 0	60	0 65
red	0 0	0 0	0 0	0 0
Bologna, white	0 0	0 0	0 0	0 0
Ashes (see Potash and Soda)				
Bleaching powd.	8 9	0 9	10 9	11 0
Borax, crude	25	0 40	25	0 35
(Tincal)	45	0 60	30	0 50
British refined	69	0 70	60	0 75
Calomel	2 5	0 0	2 5	0 0
Copper:				
Sulphate	23	0 34	23	0 24
Copperas, green, per ton	52	0 60	55	0 60
Corrosive Sublimate, p. lb.	1 11	0 0	1 11	0 0
Cr. Tartar, French, p. cwt.	82	0 0	83	0 84
Venetian grey	0 0	0 0	0 0	0 0
brown	65	0 74	62	0 72
Epsom Salts	7	0 8	8	0 8
Glauber Salts	4	0 6	5	0 6
Lime:				
Acetate, white, per cwt.	13	0 23	11	0 21
Magnesia:				
Carbonate	42	0 0	42	0 0
Potash:				
Bichromate	0 5	0 0	0 5	0 0
Potashes, Canada, 1st sort	0 0	0 0	32	0 0
Pearlashes, Canada, 1st sort	0 0	0 0	32	0 0
Chlorate	0 11	0 0	1 1	0 0
Perchlorate	1 0	0 0	1 0	0 0
red	1 9	1 10	1 9	1 10
Tartaric (see Argol and Cream of Tartar)				
Potassium:				
Chloride	8	0 0	8	0 8
Iodide	12	0 0	12	0 0
Quinine:				
Sulphate, British, in bottles	5	0 0	4	0 0
Sulphate, French	5	0 0	4	0 0
Sal Acetos	0 10	0 0	0 10	0 0
Sal Ammoniac, Bri. cwt.	38	0 40	34	0 35
Saltpetre:				
Bengal, 6 per cent. or under	22	0 22	19	0 19
Bengal, over 6 per cent. ..	21	0 22	19	0 19
Madras	0 0	0 0	17	0 18
Bomb. & Kurrachee p. ct.	0 0	0 0	0 0	0 0
European	0 0	0 0	0 0	0 0
British, refined	26	0 23	23	0 24
Soda: Bicarbonate, p. cwt.	9	0 9	11	0 0
Carbonate:				
Soda Ash	0 1	0 1	0 1	0 0
Soda Crystals per ton	75	0 77	87	0 90

Soda:	1869.		1868.	
	s. d.	to s. d.	s. d.	to s. d.
Hyposulphite... per cwt.	16	0 18	22	0 0
Nitrate	16	0 16	14	0 0
SUGAR OF LEAD, White, cwt.	40	0 0	37	0 14
Brown	39	0 0	36	0 0
SULPHUR (see Brimstone)				
VERDIGRIS	1	0 2	0 11	1 0
VERMILION, English..per lb.	2	0 0	2	0 0
China	2	0 0	2	0 2

DRUGS.

ALOES, Hepatic.....	1869.		1868.	
	s. d.	to s. d.	s. d.	to s. d.
Scotcharie	60	0 130	160	0 150
Capa. Good	28	0 31	28	0 31
Inferior	19	0 23	16	0 27
Barbados	90	0 220	70	0 200
AMBERGEE, grey.....oz.	37	0 6	30	0 35
BALSAMS—				
Canada	1	0 0	1	0 0
Capivi	1	0 0	1	0 0
Peru	11	0 11	8	0 0
Tolu	2	0 2	2	0 0
BARKS—				
Cascarilla	24	0 36	30	0 33
Casca. alba	26	0 36	23	0 35
Peru, crown & grey per lb.	9	0 2	9	0 1
Alcayna, flat	3	0 3	2	0 2
Carthage	0	0 1	0	0 1
Pitaya	0	0 1	0	0 1
Red	0	0 1	0	0 1
Buco	0	0 1	0	0 1
CAMPOR, China, per cwt.	90	0 92	132	0 135
Japan	65	0 0	135	0 0
Refin Eng. per lb.	1	0 0	1	0 0
CANTHARIDES	210	0 3	21	0 0
CHAMOMILE FLOWERS, p. cwt	50	0 80	55	0 100
CASIORUM	4	0 32	5	0 32
DRAGON'S BLOOD, red, p. ct.	100	0 120	100	0 100
lump	100	0 200	100	0 240

FRUITS AND SEEDS (see also Seeds and Spices)

Anise, China Star per cwt.	1869.		1868.	
	s. d.	to s. d.	s. d.	to s. d.
German, &c.	25	0 38	30	0 40
Beans, Tongkin	1	0 1	1	0 1
Cardamoms, Malabar good	7	0 8	8	0 8
inferior	5	0 7	5	0 7
Madras	4	0 9	5	0 9
Ceylon	2	0 3	2	0 3
Corozo Nuts	14	0 18	12	0 16
Cassia Fistula	20	0 40	15	0 28
Caster Seeds	11	0 13	11	0 13
Cocculus Indicus	21	0 23	22	0 26
Colocynth, apple, per lb.	0	0 9	0	0 10
Croton Seeds	48	0 53	50	0 58
Cubebs	35	0 43	35	0 43
Cumam	55	0 65	21	0 28
Dividivi	10	0 12	10	0 12
Fenugreek	10	0 14	10	0 14
Guinea Grains	35	0 40	35	0 40
Juniper Berries	7	0 8	9	0 10
Myrobalans	8	0 15	11	0 15
Nux Vomica	13	0 16	10	0 16
Tamarinds, East India ..	12	0 22	30	0 32
West India, now	12	0 22	17	0 0
Vanilla, large	22	0 25	10	0 16
inferior	10	0 20	8	0 8
Wormseeds per cwt.	25	0 30	25	0 30
GINGER, Preserved, in bond (duty 1d. per lb.) per lb.	0	0 6	0	0 10
Gums (see separate list)				
HONEY, Narbonne	0	0 0	0	0 0
Cuba	21	0 36	21	0 36
Jamaica	23	0 56	25	0 43
IPERACACIA	5	0 6	5	0 7
ISINGLASS, Brazil	2	0 4	3	0 4
Tongue sort	3	0 5	4	0 5
East India	2	0 4	2	0 4
West India	4	0 4	3	0 4
Russ, long staple	5	0 8	5	0 7
" leaf	3	0 5	0	0 0
" Simovia	1	0 2	1	0 2
JALAP, good	3	0 4	3	0 4
infer. & stems	0	0 3	0	0 3
LEMON JUICE	0	0 1	0	0 1
LIQUORICE, Spanish per cwt.	63	0 88	65	0 70
Italian	48	0 67	50	0 60
MARNA, flaky	4	0 4	3	0 3
small	2	0 0	2	0 0
MTRX. per oz.	16	0 32	0	0 0
OILS (see separate list)				
Almond, expressed per lb.	1	0 0	1	0 0
Castor, 1st pale	0	0 4	0	0 5
second	0	0 4	0	0 5
infer. & dark	0	0 4	0	0 4
Bombay (in casks)	0	0 4	0	0 4
Cod Liver	5	0 7	4	0 7
Croton	3	0 4	3	0 4
Essential Oils:				
Almond	42	0 0	40	0 0
Aniseed	9	0 0	9	0 0
Bay	65	0 70	75	0 0
Bergamot	8	0 15	12	0 23
Caieput, (in bond) per oz.	0	13	0	13
Caraway	5	0 9	5	0 6
Cassia	5	0 5	5	0 6
Cinnamon	1	0 4	1	0 4

	1869.		1868.	
Oils, continued :—	£ s.	£ s.	£ s.	£ s.
COD.....	43 0 ..	44 0 ..	37 0 ..	40 0 ..
WHALE, South Sea, pale ..	39 0 ..	0 0 ..	38 0 ..	40 0 ..
" " yel. brown ..	39 0 ..	0 0 ..	37 0 ..	40 0 ..
" " East India, fresh ..	34 0 ..	35 0 ..	33 0 ..	34 0 ..
OLIVE, Gallipoli	53 ..	0 0 ..	63 0 ..	0 0 ..
" Trieste	57 0 ..	0 0 ..	68 0 ..	0 0 ..
" Levant	52 10 0 ..	0 0 ..	63 0 ..	0 0 ..
Mogador	51 10 0 ..	0 0 ..	62 0 ..	0 0 ..
" Malah	54 0 ..	56 10 0 ..	67 0 ..	68 0 ..
Sicily	54 0 ..	0 0 ..	66 0 ..	0 0 ..
COCONUT, Ceylon... per ton	44 0 0 ..	0 0 ..	52 0 0 ..	53 0 ..
" Coccol	42 0 0 ..	0 0 ..	50 10 0 ..	51 0 ..
" Sydney	56 0 0 ..	41 0 ..	45 0 0 ..	50 10 ..
GROUND NUT AND GINGERLY :				
Bombay	0 0 ..	0 0 ..	0 0 ..	0 0 ..
Madras	40 0 ..	41 0 ..	40 0 ..	41 0 ..
Palm oil	29 0 ..	12 0 ..	42 0 ..	43 0 ..
LINSEED	29 5 ..	29 10 ..	29 10 ..	0 0 ..
RAPSEED, English, pale ..	41 0 ..	0 0 ..	33 10 ..	0 0 ..
" " brown	39 0 ..	39 5 ..	31 10 ..	0 0 ..
Foreign pale	42 0 ..	44 10 ..	34 0 ..	35 0 ..
" " brown	39 5 ..	0 0 ..	31 10 ..	32 0 ..
COTTONSEED	31 0 ..	33 0 ..	30 0 ..	37 0 ..
TALLOW	35 0 ..	37 0 ..	37 0 ..	70 0 ..
TURPETINE, American, cks.	23 0 ..	0 0 ..	26 0 ..	0 0 ..
PETROLEUM, Crude	14 0 ..	0 0 ..	13 0 ..	13 10 ..
" refined, per gall.	1 7½ ..	0 0 ..	1 5½ ..	1 6 ..
" Spirit	0 9¼ ..	0 9¾ ..	1 1 ..	0 0 ..
SEEDS.	s. d.	s. d.	s. d.	s. d.
CANARY .....per qr.	62 0 ..	72 0 ..	76 0 ..	86 0 ..
CARAWAY .....per cwt.	43 0 ..	50 0 ..	40 0 ..	42 0 ..
" German, &c.....	39 0 ..	50 0 ..	30 0 ..	42 0 ..
CORIANDER	20 0 ..	21 0 ..	0 0 ..	0 0 ..
HEMP .....per qr.	43 0 ..	44 0 ..	0 0 ..	0 0 ..
LINSEED	43 0 ..	44 0 ..	65 0 ..	72 0 ..
" Black Ses. & Azof	53 6 ..	0 0 ..	56 0 ..	0 0 ..
" Calcutta	63 6 ..	0 0 ..	61 6 ..	62 6 ..
" Bombay	65 0 ..	0 0 ..	63 0 ..	64 0 ..
" St. Petrsburg..	56 0 ..	58 0 ..	56 0 ..	0 0 ..
Mustard, per bush.	0 0 ..	0 0 ..	0 0 ..	0 0 ..
" white	11 6 ..	12 6 ..	12 0 ..	13 0 ..
POPPEY, East India per qr.	55 0 ..	56 0 ..	57 6 ..	0 0 ..
CASLES.				
CASSIA LIGNEA ...per cwt.	130 0 ..	138 0 ..	134 0 ..	140 0 ..
" Vera	45 0 ..	85 0 ..	60 0 ..	84 0 ..
" Buds	150 0 ..	170 0 ..	140 0 ..	160 0 ..
CINNAMON, Ceylon,				
1st quality ....per lb.	2 5 ..	3 9 ..	2 8 ..	3 ..
2nd do	1 10 ..	3 7 ..	1 10 ..	2 11 ..
3rd do	1 7 ..	3 5 ..	1 6 ..	2 7 ..
Tellicherry	1 12 ..	2 6 ..	0 0 ..	0 0 ..
GLOVES, Padang	0 43 ..	0 51 ..	0 10 ..	0 11 ..
Ambonyia	0 43 ..	0 51 ..	0 42 ..	0 51 ..
Zanzibar	0 8 ..	0 0 ..	0 34 ..	0 4 ..
GINGER, Jam , fine per cwt.	110 0 ..	200 15 ..	35 0 ..	80 0 ..
" do good	24 0 ..	25 0 ..	23 0 ..	24 0 ..
" African	24 0 ..	25 0 ..	23 0 ..	24 0 ..
" Bengali	26 0 ..	27 0 ..	26 0 ..	26 0 ..
" Malacca	26 0 ..	27 0 ..	26 0 ..	26 0 ..
" Cochin	37 0 ..	120 0 ..	33 0 ..	129 0 ..
PEPPER, Blk, Malabar, perl b.	0 5 ..	0 5½ ..	0 4½ ..	0 5 ..
" White, Tellichery ..	0 9 ..	1 5 ..	0 10 ..	1 5 ..
" Cayenne	3 7 ..	4 5 ..	3 7 ..	4 5 ..
MACIE, lat quality .per lb.	3 7 ..	4 5 ..	2 8 ..	3 6 ..
" 2d and inferior ..	2 6 ..	3 6 ..	1 6 ..	2 6 ..
NUTMEGS, 78 to 60 lb. to	2 10 ..	4 4 ..	2 10 ..	4 4 ..
" 60 to 50	2 6 ..	2 2 ..	2 6 ..	2 2 ..
" 50 to 35	1 8 ..	2 2 ..	1 2 ..	1 5 ..
" 35 to 25	1 8 ..	2 2 ..	1 2 ..	1 5 ..
VARIOUS PRODUCTS.				
COCHINEAL—				
Honduras, black ..per lb.	2 9 ..	3 10 ..	3 2 ..	4 5 ..
" silver	2 7 ..	3 0 ..	2 9 ..	3 8 ..
" party	2 7 ..	3 0 ..	2 9 ..	3 8 ..
Mexican, black	2 9 ..	3 8 ..	3 1 ..	3 8